This document gives pertinent information concerning the reissuance of the VPDES Permit listed below. This permit is being processed as a **Minor, Industrial** permit. The discharge consists of water treatment plant backwash water, sump pump water from building underdrains, cooling water, and storm water runoff associated with industrial activity. This permit action consists of updating the proposed effluent limits to reflect the current Virginia WQS (effective January 6, 2011) and updating permit language, as appropriate, to reflect current agency guidance. The effluent limitations and special conditions contained in this permit will maintain the Water Quality Standards of 9VAC25-260-00 et seq.

1.	Facility Name and Mailing Address:	FEMA Industrial Mount Weather Emergency Operations Center P.O. Box 129 Berryville, VA 22611	SIC Codes : 9229, 4941 4961, 4959	• Civil Defense Agencies • Water Supply • Steam and Air Conditioning Supply • Sanitary Services
	Facility Location:	Mount Weather Emergency Operations Center 19844 Blue Ridge Mountain Road Berryville, VA 20135	Counties:	Loudoun/Clarke
	Facility Contact Name:	Peter Mango	Telephone Number:	540-542-2497
2.	Permit No.:	VA0091464	Expiration Date of previous	9/11/11
	Other VPDES Permits associated with this facility:		VA0024759	
	Other Permits associated with this facility:		VAR000012609 (Waste); 3022703 (UST/AST); VA2043634 (Public Water Supply); 73694 (Air)	
	E2/E3/E4 Status:	NA		
3.	Owner Name:	Department of Homeland Security/FEMA		
	Owner Contact/Title:	Kathy Ellis Environmental Engineer	Telephone Number:	540-542-2176
4.	Application Complete Date:	4/15/2011		
	Permit Drafted By:	Anna Westernik	Date Drafted:	6/3/2011
	Draft Permit Reviewed By:	Alison Thompson	Date Reviewed:	6/20/2011
	Draft Permit Reviewed By:	Bryant Thomas	Date Reviewed:	7/5/2011
	Public Comment Period :	Start Date: 9/15/2011	End Date:	10/14/2011

5. Receiving Waters Information: The flow frequencies for intermittent streams are 0.0 MGD. Reservoir Hollow is spring fed. The flow frequency is undeterminable, and thus equivalent to 0.0 MGD.

Outfalls 001 and 101	(Western Portion of Facility)		
Receiving Stream Name:	Reservoir Hollow and Reservoir Hollow, UT	Stream Code:	1BREH
Drainage Area at Outfall 001:	0.037 sq.mi.	River Mile:	Outfall 001 – 3.54
Stream Basin:	Potomac River	Subbasin:	Shenandoah River
Section:	1	Stream Class:	IV
Special Standards:	pH 6.5-9.5	Waterbody ID:	VAV-B58R
7Q10 Low Flow:	0.0 MGD	7Q10 High Flow:	0.0 MGD
1Q10 Low Flow:	0.0 MGD	1Q10 High Flow:	0.0 MGD
Harmonic Mean Flow:	0.0 MGD	30Q5 Flow:	0.0 MGD
303(d) Listed:	No, but downstream PCB impairment	30Q10 Flow:	0.0 MGD
TMDL Approved:	Yes (PCB)	Date TMDL Approved:	10/1/2001

Outfalls 002 and 201	(Eastern Portion of Facility)		
Receiving Stream Name:	Jefferies Branch, UT	Stream Code:	1AXLA
Drainage Area at Outfall 002:	0.036 sq.mi.	River Mile:	Outfall 002 – 0.61
Stream Basin:	Potomac River	Subbasin:	Potomac River
Section:	9	Stream Class:	III
Special Standards:	None	Waterbody ID:	VAN-A05R
7Q10 Low Flow:	0.0 MGD	7Q10 High Flow:	0.0 MGD
1Q10 Low Flow:	0.0 MGD	1Q10 High Flow:	0.0 MGD
Harmonic Mean Flow:	0.0 MGD	30Q5 Flow:	0.0 MGD
303(d) Listed:	No, but downstream bacteria, benthic, PCB impairments	30Q10 Flow:	0.0 MGD
TMDL Approved:	Yes (Bacteria, Benthic)	Date TMDL Approved:	10/20/2006; 4/16/2004

6. Statutory or Regulatory Basis for Special Conditions and Effluent Limitations:

- ✓ State Water Control Law
- ✓ Clean Water Act
- ✓ VPDES Permit Regulation
- ✓ EPA NPDES Regulation
- EPA Guidelines
- ✓ Water Quality Standards
- Other: (9 VAC 25-860 -- General Permit for Potable Water Treatment Plants; 9 VAC 25-120 -- General Permit for Discharges from Petroleum-Contaminated Sites, Groundwater Remediation and

7. Licensed Operator Requirements: None

8. Reliability Class: None

9. Permit Characterization:

___ Private	___ Effluent Limited	___ Possible Interstate Effect
✓ Federal	✓ Water Quality Limited	___ Compliance Schedule Required
___ State	✓ Toxics Monitoring Program Required	___ Interim Limits in Permit
___ POTW	___ Pretreatment Program Required	___ Interim Limits in Other Document
✓ TMDL		

10. **Wastewater Sources and Description:**

FEMA is a federal government facility located on a mountain ridge on Route 60 near Bluemont, Virginia that has been in operation since the early 1900s. The facility encompasses administrative programs, training and housing facilities, and emergency and disaster relief support. FEMA has water and sewage treatment plants, a police force, and fire/rescue personnel on site. The facility population varies greatly throughout the year depending on surge requirements. However, there are approximately 1,200 people who work at the facility.

Outfall 001
Outfall 001 consists of storm water that drains the western portion of the facility and any discharge that would occur from the water treatment plant lagoon (see Table 1 for description). The outfall receives storm water drainage from paved roads, oil storage areas (covered tanks), hazardous waste storage (covered metal buildings), road salt storage (covered shed), construction activities, and basement sump pump discharges. This outfall discharges into Reservoir Hollow above the abandoned reservoir for the Town of Berryville. Reservoir Hollow exits the property at Route 605 in Clarke County.

Outfall 101 (Water Treatment Plant)
The average potable water production from the Water Treatment Plant (WTP) is between 100,000 to 125,000 gpd. The plant uses numerous pump stations to draw raw water from the Shenandoah River through a flash mixer where a polymer based coagulant aid is added. Water then enters the flocculation and clarification basin where solids settle. The clarifier effluent enters two rapid sand filters prior to disinfection with chlorine gas in the clearwell. Sufficient chlorine is added to maintain a residual throughout the water distribution system. Sodium hexametaphosphate, a corrosion inhibitor, is added at the clearwell.

All backflush wastewater created by the WTP is discharged to a lagoon with a capacity of approximately 0.34 MG (9' deep x 100' long x 50' wide) located about one-half mile west of the WTP.

The WTP filters are usually backwashed monthly for approximately 15 minutes using clearwell water. The backwash process creates a maximum volume of approximately 30,000 gallons of wastewater. Additionally, the flocculation/clarification basin is drained and cleaned twice each year and discharged into the lagoon. The approximate volume of wastewater created by the cleaning of the basin during each occurrence is 270,000 gallons or 540,000 gallons/year.

Wastewater created by backwashing the filters and cleaning of the basin is discharged to a pipe under the WTP. The pipe runs approximately one-half mile west of the water treatment plant and downhill from the plant. It enters a lined basin that is one half of a lagoon. The remaining half of the lagoon accepts storm water runoff. Discharge from the filter backwash basin enters a pipe and runs further downhill to intersect with an unnamed tributary of Reservoir Hollow 0.18 rivermiles east of Outfall 001.

Outfall 002

Outfall 002, which discharges to an unnamed tributary of Jefferies Branch where it exits the FEMA property, receives drainage from the eastern side of the property and sump and cooling water discharge. All discharge from Outfall 201 and storm water discharge from the drainage area south of Internal Outfall 201 travel through this outfall (See Table 1 for description).

Outfall 201 (Sump Discharge, Cooling Water Discharge, Storm Water)

Southwest of the east parking lot is a roadside discharge that receives sump pump discharges, condensate from air conditioning towers, and storm water from the main complex of buildings on the eastern side of the property. This discharge enters a series of two ponds for treatment by aeration and sedimentation. Additional treatment is provided by two wiers in the ponds that collect oil. Siphons remove the collected oil and grease for disposal. Used liquid oil is recycled and non-liquid oil products are disposed of as hazardous waste. Effluent from the ponds is piped under a road and discharged into an unnamed tributary of Jefferies Branch approximately 300 feet from the Outfall 002 discharge area.

See **Attachment 1** – NPDES Permit Industrial Rating Worksheets
(Score Outfall 001, West Side of Facility = 70, Minor)
(Score Outfall 002, East Side of Facility = 15, Minor)
See **Attachment 2** -- Facility schematic.

TABLE 1 – Description of Outfalls

OUTFALL NO.	LATITUDE AND LONGITUDE	DISCHARGE SOURCES AND FREQUENCY	TREATMENT	FLOWS
Outfall 001 Storm Water Discharge (Western Side of Facility) 225 Acres Drained 12 Acres of Impervious Surface	39° 03' 58.7" 77° 54' 08.5"	Runoff from paved roads, construction activities, oil storage areas (covered tank), hazardous waste storage areas (covered metal buildings), and road salt storage (covered area). WTP plant discharge and sump pump discharge. Intermittent storm water discharge.	Overland Flow	0.19 MGD
Outfall 101 (Water Treatment Plant)	39° 03' 57.3" 77° 53' 58.9"	Discharge from a lagoon receiving WTP wastewater and storm water. Outfall discharges approximately two times per month for two to three hours to discharge backwash wastewater. Outfall discharges overnight twice per year to discharge basin cleanout wastewater.	Sedimentation	0.08 MGD
Outfall 002 Storm Water Discharge (Eastern Side of Facility) 160 Acres Drained 20 Acres of Impervious Surface	39° 03' 29.4" 77° 53' 06.0"	A storm water collection system captures overflow from the potable water system, sumps, drainage from a vehicle maintenance and fueling area, and a warehouse loading/unloading area. Sheet flow from parking lots, satellite dish/radio tower area, and paved and gravel roads from construction activity. Intermittent storm water discharge.	Storm water runoff and sump discharge is captured in a series of three small ponds that treat by aeration and sedimentation. A weir in the pond assists in containing oil from parking lots, vehicles, etc. Some treatment by overland flow.	0.051 MGD
Outfall 201	39° 03' 33.3" 77° 53' 0.4.2"	Discharge from a spring water sump, air conditioning condensate, and storm water. Sump discharge is continuous. Storm water and cooling water discharge is intermittent.	Discharge in a series of three small ponds that treat by aeration and sedimentation. Oil collected using a weir in the pond.	0.10 MGD

Attachment 3 -- Topographic map 216C (Ashby Gap) shows outfall locations.

11. Sludge Treatment and Disposal Methods:
This is an industrial facility that does not generate or treat sewage sludge. Industrial residue accumulates in the water treatment plant lagoon. The permittee shall follow an approved Residue Management and Disposal Plan that details handling of the wasted industrial sludge.

12.a Discharges, Intakes, Monitoring Stations, Other Items in Water Body VAN-A05R

TABLE 2

Individual Permits

River Mile	Type	Latitude/Longitude	Description
1.19 Jefferies Branch, UT	0.09 MGD Municipal Wastewater Discharge	38° 03' 32" 77° 52' 53"	FEMA Bluemont STP (VA0024759)
25.98 Goose Creek	0.075 MGD Municipal Wastewater Discharge	39° 03' 21" 77° 44' 38"	Foxcroft School (VA0024112)
3.07 Wancopin Creek	0.25 MGD Municipal Wastewater Discharge	38° 52' 23" 77° 43' 36"	Middleburg WWTP (VA0024775)
0.32 Goose Creek, UT	0.015 MGD Municipal Wastewater Discharge	38° 59' 27.1" 77° 47' 21.1"	Notre Dame Academy (VA0027197)

Single Family Homes

Receiving Stream	Description
Goose Creek, UT	Allen Fred Residence (VAG406470)
Woolf's Mill Run	Latimer Howard L Residence (VAG406193)

12.b Discharges, Intakes, Monitoring Stations, Other Items in Water Body VAV-B58R

Drinking Water Intakes

Stream	Type	Latitude/Longitude	Description
Shenandoah River	Drinking Water Intake	39° 06' 12" 77° 54' 46"	FEMA Drinking Water Intake
Shenandoah River	Drinking Water Intake	39° 05' 56" 77° 58' 31"	Town of Berryville Drinking Water Intake

Storm Water Industrial

Receiving Stream	Description
Wheat Spring Branch, UT	BFI Waste Systems – Berryville Landfill (VAR050968)

Non Metallic Mineral Mining

Receiving Stream	Description
Shenandoah River, UT	Stuart M. Perry, Inc. – Berryville (VAG840136)

13. Material Storage: See Attachment 4.

14. Site Inspection: Performed by Anna Westernik and Susan Mackert on May 10, 2011 (see **Attachment 5**).

15. Receiving Stream Water Quality and Water Quality Standards:

a) Ambient Water Quality Data

Outfall 001 discharges into Reservoir Hollow. Reservoir Hollow flows to a reservoir for the Town of Berryville and to the Shenandoah River. The reservoir for the Town of Berryville is no longer used as a drinking water intake for the Town of Berryville. This discharge is in the VAV-B58R waterbody (Lower Shenandoah River). The Department of Environmental Quality (DEQ) does not monitor Reservoir Hollow. Monitoring is conducted downstream of the confluence of Reservoir Hollow and the Shenandoah River at Ambient Monitoring Station 1BSN022.63 on the Shenandoah River, approximately 5.26 miles downstream from Outfall 001. This station, located near the Department of Game and Inland Fisheries Boat launch on Route 7, is not representative of the Outfall 001 discharge because it is not in the direct vicinity of the discharge and is influenced by too many other factors.

A 51.1 mile segment of the Shenandoah River into which Outfall 001 ultimately discharges is impaired due to a 2004 Virginia Department of Health (VDH) advisory fish consumption advisory due to the presence of PCBs. A PCB Total Maximum Daily Load (TMDL) was approved by EPA for this segment of the Shenandoah River on October 1, 2001. The State Water Control Board approved the TMDL on March 23, 2004. PCBs were not detected in sampling collected from Internal Outfall 101 of this facility in January 2011. PCBs were not detected in storm water sampling conducted in June 2004 from Outfall 001.

Internal Outfall 201 and Outfall 002 discharge into unnamed tributaries of Jeffries Branch that flow to Jefferies Branch, Panther Skin Creek, Goose Creek and ultimately the Potomac River. These discharges are located in the VAN-A05R waterbody (Middle Goose Creek/Panther Skin Creek). The Department of Environmental Quality (DEQ) does not monitor Jefferies Branch and its tributaries. Panther Skin Creek is monitored upstream of its confluence of Jefferies Branch. The nearest downstream ambient monitoring station is located at Route 611 on Goose Creek (1AGOO030.75), approximately 10.9 miles downstream of Outfall 002. This station is not representative of the discharges because it is far downstream and thus, is influenced by too many other factors.

The 4.77-mile segment of Goose Creek from the Goose Creek impoundment to the confluence with the Potomac River is impaired for recreational use and aquatic life use due to *E. coli* bacteria and benthic impairments. EPA approved an *E. coli* TMDL for Goose Creek on May 1, 2003 and a sediment TMDL on April 26, 2004. These TMDLs were approved by the SWCB on June 17 and August 31, 2004, respectively. Outfalls 201 and 002 are industrial discharges that should not contain *E. coli* bacteria.

A 2004 Virginia Department of Health (VDH) fish consumption advisory was issued due to the presence of PCBs along Goose Creek from the crossing of the Dulles Greenway Road Bridge downstream until the confluence with the Potomac River. PCBs were not detected in sampling collected from Internal Outfall 201 of this facility in November 2006. PCBs were not detected in storm water sampling conducted in June 2004 from Outfall 001.

See **Attachment 6**, Planning Statement.

b) Receiving Stream Water Quality Criteria

Part IX of 9VAC25-260(360-550) designates classes and special standards applicable to defined Virginia river basins and sections. The receiving streams for Outfalls 001 and 101, Reservoir Hollow and Reservoir Hollow, UT, are located within Section 1 of the Potomac and Shenandoah River Basin, and are Class IV waters. The receiving stream for Outfalls 002 and 201, Jefferies Branch, UT, is located within Section 9 of the Potomac River Basin and is a Class III water.

The Virginia Water Standards (9 VAC 25-260-50) state that Class II and IV waters must maintain a minimum dissolved oxygen (D.O.) of 4.0 mg/L or greater and a daily average D.O. of 5.0 mg/L or greater.

Class III waters must maintain a pH of 6.0-9.0 Standard Units (S.U.) and a maximum temperature of 32°C. Class IV waters must maintain a pH of 6.0-9.0 S.U. and a maximum temperature of 31°C. However, in the case of Section 1 of the Shenandoah River Subbasin, special standards are present that require pH be maintained between 6.5 and 9.5 S.U. due to the prevalence of limestone geology in the area.

Ammonia:
It is staff's best professional judgment that this is not a pollutant of concern since there are no sources on site in appreciable quantities.

Metals Criteria:
The 7Q10 of the receiving streams is zero and no ambient data is available; therefore, the effluent data for hardness can be used to determine the metals criteria. The hardness-dependent metals criteria for Internal Outfalls 101 and 201 in **Attachment 7** are based on effluent value hardness values of 152 mg/L (collected on April 21, 2011) and 310 mg/L (collected on April 26, 2011), respectively.

Bacteria:
The Virginia Water Quality Standards (9VAC25-260-170.A.) establishes the following criteria to protect primary contact recreational uses:

E. coli bacteria per 100 mL of water shall not exceed the following:

	Monthly Geometric Mean[1]
Freshwater *E. coli* (N/100 mL)	126

[1]Four or more samples taken during any calendar month.

It is staff's best professional judgment that *E. coli* bacteria is not expected to be present in this industrial storm water discharge; therefore, limitations are not applicable to this facility.

Attachment 7 details other water quality criteria applicable to the receiving stream.

c) Receiving Stream Special Standards
The State Water Control Board's Water Quality Standards, River Basin Section Tables (9 VAC 25-260-360, 370 and 380) designates the river basins, sections, classes, and special standards for surface waters of the Commonwealth of Virginia. The receiving streams, Reservoir Hollow and Reservoir Hollow, UT are located within Section 1 of the Potomac River Basin. This section has been designated a Class IV water with a special standards for pH of 6.5 to 9.5 S.U.. The receiving stream, Jefferies Branch, UT, is located within Section 9 of the Potomac and Shenandoah River Basin. This section has been designated a Class III water with no special standards.

The Special Standard of pH 6.5 to 9.5 S.U. was established to account for the natural occurrence of high pH values in the water in this region due to the prevalence of limestone geology.

d) Threatened or Endangered Species
The Virginia DGIF Fish and Wildlife Information System Database was searched on April 19, 2011 for records to determine if there are threatened or endangered species in the vicinity of the discharge. The following threatened or endangered species were identified within a 2-mile radius of the discharges from each of the outfalls: Brook Floater, Wood Turtle, Upland Sandpiper, Loggerhead

Shrike, Henslow's Sparrow, Bald Eagle, Green Floater, and Migrant Loggerhead Shrike. The limits proposed in this draft permit are protective of the Virginia Water Quality Standards and therefore, protect the threatened and endangered species found near the discharge.

16. **Antidegradation (9VAC25-260-30):**

The State Water Control Board's Water Quality Standards adopted in 1992 included an antidegradation policy (9 VAC 25-260-30). All state surface waters are provided one of three levels of antidegradation protection. For Tier 1 or existing use protection, existing uses of the water body and the water quality to protect these uses must be maintained. Tier 2 water bodies have water quality that is better than the water quality standards. Significant lowering of the water quality of Tier 2 waters is not allowed without an evaluation of the economic and social impacts. Tier 3 water bodies are exceptional waters and are so designated by regulatory amendment. The antidegradation policy prohibits new or expanded discharges into exceptional waters.

The receiving streams have been classified as Tier 1 based on an evaluation of the critical stream flows. The critical stream flows are either 0.00 MGD or undeterminable. At times, the streams may be comprised entirely of effluent. It is staff's best professional opinion that instream waste concentrations are 100% during critical stream flows, and the water quality of the streams will mirror that of the effluent. Permit limits proposed have been established by determining wasteload allocations that will result in attaining and/or maintaining all water quality criteria applicable to the receiving stream, including narrative criteria. These wasteload allocations will provide for the protection and maintenance of all existing uses.

17. **Effluent Screening, Wasteload Allocation, and Effluent Limitation Development (Internal Outfalls 101 and 201) :**

To determine water quality-based effluent limitations for a discharge, the suitability of data must first be determined. Data is suitable for analysis if one or more representative data points is equal to or above the quantification level ("QL") and the data represent the exact pollutant being evaluated.

Next, the appropriate Water Quality Standards (WQS) are determined for the pollutants in the effluent. Then, the Wasteload Allocations (WLA) are calculated. In this case since the critical flows 7Q10 and 1Q10 have been determined to be zero, the WLA's are equal to the WQS. The WLA values are then compared with available effluent data to determine the need for effluent limitations. Effluent limitations are needed if the 97th percentile of the daily effluent concentration values is greater than the acute wasteload allocation or if the 97th percentile of the four-day average effluent concentration values is greater than the chronic wasteload allocation. Effluent limitations are based on the most limiting WLA, the required sampling frequency, and statistical characteristics of the effluent data.

a) Effluent Screening:
   1) Internal Outfall 101 -- January and March 2011 effluent data obtained from Attachment A and the permit application have been reviewed and determined to be suitable for evaluation.
   2) Internal Outfall 201 – November 2006 effluent data has been reviewed and determined to be suitable for evaluation.

   Please see **Attachment 8** for a summary of parameters in the effluent from Internal Outfalls 101 and 201 above quantifiable levels.

b) Mixing Zones and Wasteload Allocations (WLAs):
   Wasteload allocations (WLAs) are calculated for those parameters in the effluent with the reasonable potential to cause an exceedance of water quality criteria. The basic calculation for establishing a WLA is the steady state complete mix equation:

$$WLA = \frac{C_o [Q_e + (f)(Q_s)] - [(C_s)(f)(Q_s)]}{Q_e}$$

Where:
- WLA = Wasteload allocation
- C_o = In-stream water quality criteria
- Q_e = Design flow
- Q_s = Critical receiving stream flow (1Q10 for acute aquatic life criteria; 7Q10 for chronic aquatic life criteria; harmonic mean for carcinogen-human health criteria; and 30Q5 for non-carcinogen human health criteria)
- f = Decimal fraction of critical flow
- C_s = Mean background concentration of parameter in the receiving stream.

The water segments receiving discharge via Internal Outfalls 101 and 201 are considered to have a 7Q10 and 1Q10 of 0.0 MGD. As such, there are no mixing zones and the WLAs are equal to the C_o.

c) Effluent Limitations Toxic Pollutants, Internal Outfalls 101 and 201:
9VAC25-31-220.D. requires limits be imposed where a discharge has a reasonable potential to cause or contribute to an in-stream excursion of water quality criteria. Those parameters with WLAs that are near effluent concentrations are evaluated for limits.

The VPDES Permit Regulation at 9VAC25-31-230.D. requires that monthly and weekly average limitations be imposed for continuous discharges from POTWs and monthly average and daily maximum limitations be imposed for all other continuous non-POTW discharges.

Effluent limit evaluations are provided in **Attachment 9**. Since the flow from both internal outfalls is intermittent, toxic limits were evaluated using acute wasteload allocations only.

1) Ammonia as N:
This is an industrial storm water discharge and ammonia based products are not utilized or stored at this facility. It is staff's best professional judgment that ammonia is not present and hence, not a pollutant of concern.

2) Total Residual Chlorine (TRC):
Chlorine is used for disinfection of the drinking water supply and hence, and has the potential to be present in the discharge from Internal Outfall 101. The permit limits of 0.011 mg/L monthly average and 0.0011 mg/L maximum found in this permit reissuance were derived from the General Permit for Potable Water Treatment Plants (9 VAC 25-860).

3) Metals:
Of the parameters found from the sampling of Internal Outfalls 101 and 201, only copper, cyanide, and zinc have designated acute criteria in the Virginia Water Quality Standards.

Limits for copper and cyanide were calculated at Internal Outfall 101 and limits for copper and zinc were calculated at Internal Outfall 201 using acute wasteload allocations. Data used to calculate metals limits for Internal Outfall 201 was collected during a dry weather period (i.e., at least 48 hours after a storm event greater than 0.1 inches).

Monthly average and daily maximum limits of 20 µg/L were found to be needed at Internal Outfall 101 for copper, and monthly average and daily maximum limits of 39 µg/L were found to be needed for Outfall 201. Limits for cyanide and zinc were not required at Internal Outfall 101 and 201, respectively. See **Attachment 9** for derivation of the limits.

4) TPH

The General Permit for Discharges from Petroleum Contaminated Sites, Groundwater Remediation and Hydrostatic Tests (9 VAC 25-120) sets forth a technology-based limit of 15 mg/L for TPH. This limit is applicable for discharges where the contamination is from petroleum products other than gasoline. It is based on the ability of simple oil-water separator technology to recover free product from water. Wastewater that is discharged without a visible sheen is generally expected to meet this effluent limitation. DEQ has used this limitation for many individual permits for many years and monitoring data has demonstrated that it is readily achievable. Mass limits are not applicable to this type of pollutant and discharge and are not required.

A technology-based limitation and monitoring requirement for TPH of 15 mg/L at Internal Outfall 201 is applicable to this facility.

d) Effluent Limitations and Monitoring, Internal Outfalls 101 and 201 – Conventional Pollutants

No changes to total suspended solids (TSS) and pH limitations are proposed at either outfall.

The limits for TSS and pH at Internal Outfall 101 are based on the General Permit for Potable Water Treatment Plants (9 VAC 25-860).

pH limitations at Internal Outfall 201 are set at the water quality criteria.

e) Effluent Limitations, Outfalls 001 and 002 – Storm Water Only Pollutants.

VA-DEQ Guidance Memo 96-001 recommends that chemical water quality-based limits not be placed on storm water outfalls because the methodology for developing limits and the proper method of sampling is still a concern and under review by EPA. Therefore, in the interim, screening (i.e., decision) criteria have been established at 2 times the acute criteria. The 2 times factor is derived from acute criteria being defined as one half of the final acute value (FAV) for a specific toxic pollutant. The term FAV is an estimate of the concentration of the toxicant corresponding to a cumulative probability of 0.05 for the acute toxicity values for all genera for which acceptable acute tests have been conducted with the toxicant. These criteria represent maximum pollutant concentration values, which when exceeded, could cause acute effects on aquatic life in a short time period. These criteria are applied solely to identify those pollutants that should be given special emphasis during development of the Storm Water Pollution Prevention Plan (SWPPP). Any storm water outfall data (pollutant specific) submitted by the permittee that were above the established end-point levels require monitoring in Part I.A. of the permit for that specific outfall and pollutant. Derivation of the decision criteria and a comparison of the monitoring end-points and effluent data for this outfall are provided in **Attachment 10**.

Should annual storm water data exceed monitoring end points shown in Tables 3 and 4 below, the permittee shall reexamine the effectiveness of the SWPPP and any best management practices (BMPs) in use.

TABLE 3 -- Outfall 001
Storm Water Benchmark Monitoring Concentration Values

Parameter	Maximum Limitation
Flow	NL (MGD)
Total Suspended Solids (TSS)	100 (mg/L)
Total Recoverable Copper	40 µg/L
Cyanide	44 µg/L
Total Recoverable Zinc	340 µg/L

TABLE 4 -- Outfall 002 Storm Water Benchmark Monitoring Concentration Values	
Parameter	**Maximum Limitation**
Flow	NL (MGD)
Total Suspended Solids (TSS)	70 (mg/L)
Total Recoverable Copper	78 µg/L
Total Recoverable Zinc	620 µg/L

f) Effluent Limitations and Monitoring Summary.

The effluent limitations are presented in the following tables. Limits and monitoring were established for flow, pH, temperature, and TSS at Outfalls 001 and 002.

A temperature limit has been placed on Outfall 002 due to the influence of heated wastestreams within the drainage area (e.g., non-contact cooling water). pH limits have been placed on Outfalls 001 and 002 to ensure that water quality standards in the receiving streams are maintained.

TSS monitoring has been placed in Outfalls 001 and 002 of the permit because TSS is a Sector AD (other storm water discharges designated by the board as needing a permit and not associated with other described industrial activity) storm water pollutant and a sediment TMDL for the Goose Creek Watershed present on the east side of the property affects the discharge from Outfall 002.

Limits have been placed on internal wastestreams to ensure proper operation of the treatment systems, to prevent the benefit of instream dilution, and to prevent the use of the receiving streams as additional treatment.

Sample Type and Frequency are in accordance with the VPDES Permit Manual and the General Permit for Potable Water Treatment Plants (9 VAC 25-860).

18. Antibacksliding:

The backsliding proposed with this reissuance conforms to the anti-backsliding provisions of Section 402(o) of the Clean Water Act, 9VAC25-31-220.L., and 40 CFR 122.44. The temperature limit of 31°C maximum has been removed from Outfall 001. The limit was applied incorrectly. There is no a potential for this discharge to affect instream temperature.

19. TABLE 5 -- Effluent Limitations/Monitoring Requirements for Outfall 001[a, b]
(Western Portion of Facility)

Average flow from this industrial outfall is 0.19 MGD

Effective Dates: During the period beginning with the permit effective date and lasting until the permit expiration date.

PARAMETER	BASIS FOR LIMITS	DISCHARGE LIMITATIONS				MONITORING REQUIREMENTS	
		Monthly Average	Daily Maximum	Minimum	Maximum	Frequency	Sample Type
Flow (MGD)	NA	NL	NA	NA	NL	1/Q[f]	Estimate
pH (Standard Units)	1	NA	NA	6.5	9.5	1/Q[f]	Grab
TSS (mg/L)	3	NA	NA	NA	NL[g]	1/Q[f]	Grab
Total Recoverable Copper (µg/L)	1	NA	NA	NA	NL[g]	1/Y[h]	Grab
Cyanide (µg/L)	1	NA	NA	NA	NL[g]	1/Y[h]	Grab
Total Recoverable Zinc (µg/L)	1	NA	NA	NA	NL[g]	1/Y[h]	Grab

TABLE 6 -- Effluent Limitations/Monitoring Requirements for Outfall 101[a, c]
Water Treatment Plant Wastewater

Average flow from this industrial outfall is 0.08 MGD

Effective Dates: During the period beginning with the permit effective date and lasting until the permit expiration date.

PARAMETER	BASIS FOR LIMITS	DISCHARGE LIMITATIONS				MONITORING REQUIREMENTS	
		Monthly Average	Daily Maximum	Minimum	Maximum	Frequency	Sample Type
Flow (MGD)	NA	NL	NA	NA	NL	1/M	Estimate
TSS (mg/L)	1, 2	30 mg/L	60 mg/L	NA	NA	1/M	5G/8HC
pH (S.U.)	1, 2	NA	NA	6.5 S.U.	9.5 S.U.	1/M	Grab
Total Residual Chlorine (mg/L)	1, 2	0.011 mg/L	0.011 mg/L	NA	NA	1/M	Grab
Total Recoverable Copper (µg/L)[e]	1	NA	NA	NA	20 µg/L	1/Q[f]	Grab
Total Hardness	3	NA	NL	NA	NA	1/Q[f]	Grab
Acute Toxicity -- *C. dubia* (TU_a)	NA	NA	NA	NA	NL	Per Permit (Part I.D)	Grab
Acute Toxicity -- *P. promelas* (TU_a)	NA	NA	NA	NA	NL	Per Permit (Part I.D)	Grab

TABLE 7 -- Effluent Limitations/Monitoring Requirements for Outfall 002[a, b]
(Drainage from Eastern Portion of Facility)

Average flow from this industrial outfall is 0.051 MGD

Effective Dates: During the period beginning with the permit effective date and lasting until the permit expiration date.

PARAMETER	BASIS FOR LIMITS	DISCHARGE LIMITATIONS				MONITORING REQUIREMENTS	
		Monthly Average	Daily Maximum	Minimum	Maximum	Frequency	Sample Type
Flow (MGD)	NA	NL	NA	NA	NL	1/Q[f]	Estimate
pH (Standard Units)	1	NA	NA	6.0	9.0	1/Q[f]	Grab
Temperature (degrees Celsius)	1	NA	NA	NA	31	1/Q[f]	Immersion Stabilization
TSS (mg/L, kg/mo)	3, 4	NA	NA	NA	NL[g]	1/Q[f]	Grab
Total Recoverable Copper (µg/L)	1	NA	NA	NA	NL[g]	1/Y[h]	Grab
Total Recoverable Zinc (µg/L)	1	NA	NA	NA	NL[g]	1/Y[h]	Grab

TABLE 8 – Effluent Limitations/Monitoring Requirements for Outfall 201[a, c]
(Sump and Cooling Water)

Average flow from this industrial outfall is 0.10 MGD

Effective Dates: During the period beginning with the permit effective date and lasting until the permit expiration date.

PARAMETER	BASIS FOR LIMITS	DISCHARGE LIMITATIONS				MONITORING REQUIREMENTS	
		Monthly Average	Daily Maximum	Minimum	Maximum	Frequency	Sample Type
Flow (MGD)	NA	NL	NA	NA	NL	1/M	Estimate
pH (Standard Units)	1	NA	NA	6.0	9.0	1/M	Grab
TPH (mg/L)[d]	3, 5	NA	NA	NA	15	1/M	Grab
Total Recoverable Copper[e]	1	NA	NA	NA	39 µg/L	1/Q[f]	Grab
Total Hardness	3	NA	NL	NA	NA	1/Q[f]	Grab
Acute Toxicity *C. dubia* (TU_a)	NA	NA	NA	NA	NL	Per Permit (Part I. D)	Grab
Acute Toxicity *P. promelas* (TU_a)	NA	NA	NA	NA	NL	Per Permit (Part I.D)	Grab

***BASIS FOR LIMITS KEY**

1. Virginia Water Quality Standards (1/06/2011).
2. General Permit for Potable Water Treatment Plants (9 VAC 25-860)
3. Best Professional Judgment.
4. Sediment TMDL for the Goose Creek Watershed
5. 9 VAC 25-120.

NL - No limitation, Monitoring required
NA - Not Applicable
1/Q – Once per quarter
1/M – Once per month
1/Y – Once per year.

Estimate - Reported flow is to be based on the technical evaluation of the sources contributing to the discharge.
Grab - An individual sample collected in less than 15 minutes.
5G/8H-C Consisting of five (5) grab samples collected at hourly intervals until the discharge ceases or five (5) grab samples taken at equal time intervals for the duration of the discharge if the discharge is less than eight (8) hours in length.
Immersion Stabilization - A calibrated device is immersed in the effluent stream until the temperature reading is stabilized.

a. All effluent shall be free of sheens. There shall be no discharge of floating solids or visible foam in other than trace amounts.

b. All samples from Outfalls 001 and 002 shall be collected from the discharge resulting from a storm event.

c. All samples from Internal Outfalls 101 and 201 shall be collected during "dry periods" (at least 72 hours after a measurable storm event).

d. Total Petroleum Hydrocarbons (TPH) is the sum of individual gasoline range organics and diesel range organics or TPH-GRO and TPH-DRO to be measured by EPA SW 846 Method 8015C (2007) for gasoline and diesel range organics, or by EPA SW 846 Methods 8260B and 8270D. If the combination of Methods 8260B and 8270D is used, the lab must report the total of gasoline range organics, diesel range organics and polynuclear aromatic hydrocarbons.

e. See Part I.C. of the permit for the Schedule of Compliance.

f. The quarterly monitoring periods shall be January through March, April through June, July through September, and October through December. The DMR shall be submitted no later than the 10th day of the month following the monitoring period

g. See Part I.F.7 of the permit for monitoring end-points.

h. The annual monitoring period shall be January 1 – December 31. The DMR shall be submitted no later than the 10th day of the month following the monitoring period (January 10).

20. Other Permit Requirements :

a) Part I.B. of the permit contains quantification levels and compliance reporting instructions. 9VAC25-31-190.L.4.c. requires an arithmetic mean for measurement averaging and 9VAC25-31-220.D. requires limits be imposed where a discharge has a reasonable potential to cause or contribute to an in-stream excursion of water quality criteria. Specific analytical methodologies for toxics are listed in this permit section as well as quantification levels (QLs) necessary to demonstrate compliance with applicable permit limitations or for use in future evaluations to determine if the pollutant has reasonable potential to cause or contribute to a violation. Required averaging methodologies are also specified.

b) Part I.C. of the permit details the requirements for a Schedule of Compliance.

The VPDES Permit Regulation, 9VAC25-31-250 allows use of Compliance Schedules to allow facilities sufficient time for upgrades to meet newly established effluent limits. The permit contains newly established limits for copper at Internal Outfalls 101 and 201. Since the facility was not designed to meet these limits, a schedule of compliance is required to provide the permittee time for facility upgrade. The permittee shall achieve compliance with the final limits specified in Part I.A. of the VPDES permit in accordance with the following schedule as contained in Part I.C. of the permit:

Action	Time Frame
1. Submit proposed plan to achieve compliance with the final limits.	Within 180 days after the effective date of the permit.
2. Report progress on attainment of final limits.	Annual reports are due on January 10 of each year.
3. Achieve compliance with final limits.	Within 4 years from the effective date of the permit.

c) Permit Section Part I.D., details the requirements for Whole Effluent Toxicity requirements
The VPDES Permit Regulation at 9 VAC 25-31-210 requires monitoring and 9 VAC 25-31-220.I, requires limitations in the permit to provide for and assure compliance with all applicable requirements of the State Water Control Law and the Clean Water Act. Whole Effluent Toxicity (WET) requirements are imposed for municipal facilities having a design flow >1.0 MGD, an approved pretreatment program, or a requirement to develop a pretreatment program. Additionally, any facility that is determined by the Board based on effluent variability, compliance history, instream waste concentration, and receiving stream characteristics to need a Toxics Management Program (TMP) will be required to develop one.

The FEMA facility has industrial dischargers with the potential to cause toxicity in the receiving stream. In accordance with 9 VAC 25-31-220.D.1.b, the potential is based on the unknown nature of the discharge, chemicals used on site, water quality data collected from the outfalls, and the high concentration of the effluent in the receiving stream (100%).

All discharges are intermittent in nature (see Table 1). In accordance with DEQ TMP guidance, acute testing using both an invertebrate and vertebrate species will be required at Internal Outfalls 101 and 201. Annual sampling is to be conducted during "dry periods" (at least 48 hours after a significant rain event of 0.1 inches or greater). Since the instream waste concentration is 100%, NOAEC will be used to determine acute toxicity.

d) Permit Section Part I.E. details the requirements of a Storm Water Management Plan.
In addition to the monitoring requirements in Part I.A of this permit, this facility must conduct quarterly visual monitoring during rainfall events. The SWPPP requirements are derived from the VPDES General Permit for discharges of storm water associated with industrial activity (9 VAC 25-151-1- et seq.).

21. Other Special Conditions :

a) O&M Manual Requirement. Required by the VPDES Permit Regulation, 9VAC25-31-190.E. Within 90 days of the effective date of this permit (January 17, 2012), the permittee shall submit for approval an Operations and Maintenance (O&M) Manual or a statement confirming the accuracy and completeness of the current O&M Manual to the Department of Environmental Quality, Northern Regional Office (DEQ-NRO). Future changes to the facility must be addressed by the submittal of a revised O&M Manual within 90 days of the changes. Non-compliance with the O&M Manual shall be deemed a violation of the permit.

b) Notification Levels
The permittee shall notify the Department as soon as they know or have reason to believe:
1. That any activity has occurred or will occur that would result in the discharge, on a routine or frequent basis, of any toxic pollutant that is not limited in this permit, if that discharge will exceed th highest of the following notification levels:
   (a) One hundred micrograms per liter;
   (b) Two hundred micrograms per liter for acrolein and acrylonitrile; five hundred micrograms per liter for 2,4-dinitrophenol and for 2-methyl-4,6-dinitrophenol; and one milligram per liter for antimony;
   (c) Five times the maximum concentration value reported for that pollutant in the permit application; or
   (d) The level established by the Board.
2. That any activity has occurred or will occur that would result in any discharge, on a nonroutine or infrequent basis, of a toxic pollutant that is not limited in this permit, if that discharge will exceed the highest of the following notification levels:
   (a) Five hundred micrograms per liter;
   (b) One milligram per liter for antimony;
   (c) Ten times the maximum concentration value reported for that pollutant in the permit application; or
   (d) The level established by the Board.

c) Materials Handling/Storage. 9VAC25-31-50 A prohibits the discharge of any wastes into State waters unless authorized by permit. Code of Virginia §62.1-44.16 and §62.1-44.17 authorize the Board to regulate the discharge of industrial waste or other waste.

d) Water Quality Criteria Monitoring. State Water Control Law §62.1-44.21 authorizes the Board to request information needed to determine the discharge's impact on State waters. States are required to review data on discharges to identify actual or potential toxicity problems or the attainment of water quality goals according to 40 CFR Part 131, Water Quality Standards, subpart 131.11. To ensure that water quality criteria are maintained, the permittee is required to analyze the effluent from Outfalls 001, 002, 101, and 201for the substances noted in Attachment A of this VPDES permit within two years of the permit expiration date and submit Attachment A and analytical data with the permit application for reissuance.

e) Non-Contact Cooling Water Additives. Chemical additives may be toxic or otherwise violate the receiving stream water quality standards. The permittee shall notify DEQ-NRO in writing at least 30 days before use of chemical additives in the non-contact cooling water. Should the use of chemical additives significantly alter the characteristics of the non-contact cooling water discharge or the use of chemical additives becomes persistent or continuous, this permit may be modified or alternatively, revoked and reissued to include appropriate limitations and conditions.

f) No Discharge of Detergents, Surfactants, or Solvents to the Oil/Water Separators. This special condition is necessary to ensure that the oil/water separators' performance is not impacted by compounds designed to emulsify oil. Detergents, surfactants, and some other solvents will prohibit oil recovery by physical means.

g) Storm Water Monitoring. This special condition establishes storm water monitoring end points. The permittee is required to reexamine the effectiveness of the SWPPP and BMPs if water monitoring results exceed the monitoring end-point for a given parameter.

h) TMDL Reopener: This special condition is to allow the permit to be reopened if necessary to bring it in compliance with any applicable TMDL that may be developed and approved for the receiving stream.

22. Permit Section Part II. Part II of the permit contains standard conditions that appear in all VPDES Permits. In general, these standard conditions address the responsibilities of the permittee, reporting requirements, testing

23. **Changes to the Permit from the Previously Issued Permit:**

a) Special Conditions:
   1) The Water Quality Criteria Reopener Special Conditions has been removed from this permit.
   2) The Water Treatment Plant Lagoon Liner Special Condition has been removed from this permit.
   3) The Submittal of Form 2C Special Condition has been removed from this permit.
   4) The No Discharge of Detergents, Surfactants, or Solvents to the Oil/Water Separators special condition has been added to this permit.

b) Monitoring and Effluent Limitations:
   1) The WET monitoring locations have been moved from Outfalls 001 and 002 to internal outfalls 101 and 201.
   2) The TRC permit limits at Internal Outfall 101 have been changed from 0.019 monthly average and daily maximum to 0.011 monthly average and daily maximum to reflect the values in the General Permit for Potable Water Treatment Plants (9 VAC 25-860).
   3) Monitoring of Storm Water Benchmark Monitoring Concentrations for TSS, Total Recoverable Copper, Cyanide, and Total Recoverable Zinc at Outfall 001 has been added.
   4) Monitoring of Storm Water Benchmark Monitoring Concentrations for TSS, Total Recoverable Copper, and Total Recoverable Zinc at Outfall 002 has been added.
   5) Total recoverable copper limits of 20 µg/L and 39 µg/L maximum for Internal Outfalls 101 and 201, respectively and a compliance schedule has been added.
   6) Hardness monitoring has been added at Internal Outfalls 101 and 201.
   7) The temperature limit of 31°C maximum has been removed from Outfall 001.
   8) The sample type for TSS at Internal Outfall 101 has been changed from grab to 5G/8HC.

c) Other:
   1) The Industrial Rating Worksheet score for Outfall 002 has changed from 25 to 55 because pH was not used as a limit based upon water quality.

24. **Variances/Alternate Limits or Conditions:** None

25. Public Notice Information:

First Public Notice Date:	The Loudoun Times Mirror The Clarke Times-Courier	9/14/2011
Second Public Notice Date:	The Loudoun Times Mirror The Clarke Times-Courier	9/21/2011

Public Notice Information is required by 9VAC25-31-280 B. All pertinent information is on file and may be inspected and copied by contacting the: DEQ Northern Regional Office, 13901 Crown Court, Woodbridge, VA 22193, Telephone No. (703) 583-3837, anna.westernik@deq.virginia.gov. See **Attachment 11** for a copy of the public notice document.

Persons may comment in writing or by email to the DEQ on the proposed permit action, and may request a public hearing, during the comment period. Comments shall include the name, address, and telephone number of the writer and of all persons represented by the commenter/requester, and shall contain a complete, concise statement of the factual basis for comments. Only those comments received within this period will be considered. The DEQ may decide to hold a public hearing, including another comment period, if public response is significant and there are substantial, disputed issues relevant to the permit. Requests for public hearings shall state 1) the reason why a hearing is requested; 2) a brief, informal statement regarding the nature and extent of the interest of the requester or of those represented by the requester, including how and to what extent such interest would be directly and adversely affected by the permit; and 3) specific references, where possible, to terms and conditions of the permit with suggested revisions. Following the comment period, the Board will make a determination regarding the proposed permit action. This determination will become effective, unless the DEQ grants a public hearing. Due notice of any public hearing will be given. The public may request an electronic copy of the draft permit and fact sheet or review the draft permit and application at the DEQ Northern Regional Office by appointment.

26. 303 (d) Listed Stream Segments and Total Max. Daily Loads (TMDL):

Outfall 001

Discharge from Reservoir Hollow flows to the Shenandoah River. The 2010 Integrated Assessment reports that in the vicinity of Monitoring station IBSHN022.63, approximately 5.26 rivermiles downstream of the discharge, observed effects of mercury in fish tissue are present, PCBs are present in fish tissue, and there is observed effect for aquatic life due to abnormal fish histology. EPA and the State Water Control Board approved the PCB TMDL for this segment of the Shenandoah River October 1, 2001 and March 23, 2004, respectively. Storm water sampling conducted at this facility on June 23, 2004 showed that PCBs were not present in the discharge from the proposed Outfall 001.

Outfall 002

The discharge from Jefferies Branch, UT flows into Goose Creek via Jefferies Branch and Panther Creek. Goose Creek is listed for bacteria and benthic impairment in the approved 2010 Virginia Water Quality Assessment Integrated Report based on sampling conducted at Monitoring Station 1aGOO030.75, located approximately 10.9 rivermiles downstream of Outfall 002. Fish consumption use is impaired due to the presence of PCBs in Goose Creek.

EPA and the State Water Control Board approved a bacteria TMDL for this segment of Goose Creek on March 1, 2003 and June 17, 2004, respectively. The sediment TMDL for this segment of Goose Creek was approved by EPA and the State Water Control Board on April 26, 2004 and August 31, 2004, respectively. The PCB TMDL is due to EPA in 2018.

27. **Additional Comments:**
Previous Board Action(s): None

Staff Comments: None.

Public Comment: No written comments were received during the public notice period.

EPA Checklist: The checklist can be found in **Attachment 12.**

List of Attachments

Attachment 1	NPDES Industrial Rating Worksheets
Attachment 2	Facility Schematic
Attachment 3	Topographic map 216C (Ashby Gap)
Attachment 4	Material Storage Summary
Attachment 5	Site Visit Memorandum Dated May 11, 2011
Attachment 6	Planning Statement Dated May 7, 2011
Attachment 7	Water Quality Criteria and Wasteload Allocations for Toxic Materials
Attachment 8	Summary of Parameters in the Effluent from Internal Outfalls 101 and 201
Attachment 9	Effluent Limit Evaluations
Attachment 10	Storm Water Benchmark Concentration Values
Attachment 11	Public Notice
Attachment 12	EPA Checklist

NPDES PERMIT RATING WORK SHEET

[X] Regular Addition
[ ] Discretionary Addition
[ ] Score change, but no status Change
[ ] Deletion

VPDES NO. : VA0091464

Facility Name: FEMA Industrial (Outfall 001)
City / County: Clarke County
Receiving Water: Reservoir Hollow
Reach Number:

Is this facility a steam electric power plant (sic =4911) with one or more of the following characteristics?

1. Power output 500 MW or greater (not using a cooling pond/lake)
2. A nuclear power Plant
3. Cooling water discharge greater than 25% of the receiving stream's 7Q10 flow rate

[ ] Yes; score is 600 (stop here) [X] NO; (continue)

Is this permit for a municipal separate storm sewer serving a population greater than 100,000?

[ ] YES; score is 700 (stop here)
[X] NO; (continue)

FACTOR 1: Toxic Pollutant Potential

PCS SIC Code: | Primary Sic Code: 9229 | Other Sic Codes: 4941

Industrial Subcategory Code: 000 (Code 000 if no subcategory)

Determine the Toxicity potential from Appendix A. Be sure to use the TOTAL toxicity potential column and check one)

Toxicity Group	Code	Points	Toxicity Group	Code	Points	Toxicity Group	Code	Points
[ ] No process waste streams	0	0	[ ] 3.	3	15	[X] 7.	7	35
[ ] 1.	1	5	[ ] 4.	4	20	[ ] 8.	8	40
[ ] 2.	2	10	[ ] 5.	5	25	[ ] 9.	9	45
			[ ] 6.	6	30	[ ] 10.	10	50

Code Number Checked: 7

Total Points Factor 1: 35

FACTOR 2: Flow/Stream Flow Volume

(Complete either Section A or Section B; check only one)

Section A – Wastewater Flow Only considered

Wastewater Type (see Instructions)			Code	Points
Type I:	Flow < 5 MGD	[ ]	11	0
	Flow 5 to 10 MGD	[ ]	12	10
	Flow > 10 to 50 MGD	[ ]	13	20
	Flow > 50 MGD	[ ]	14	30
Type II:	Flow < 1 MGD	[X]	21	10
	Flow 1 to 5 MGD	[ ]	22	20
	Flow > 5 to 10 MGD	[ ]	23	30
	Flow > 10 MGD	[ ]	24	50
Type III:	Flow < 1 MGD	[ ]	31	0
	Flow 1 to 5 MGD	[ ]	32	10
	Flow > 5 to 10 MGD	[ ]	33	20
	Flow > 10 MGD	[ ]	34	30

Section B – Wastewater and Stream Flow Considered

Wastewater Type (see Instructions)	Percent of Instream Wastewater Concentration at Receiving Stream Low Flow		Code	Points
Type I/III:	< 10 %	[ ]	41	0
	10 % to < 50 %	[ ]	42	10
	> 50%	[ ]	43	20
Type II:	< 10 %	[ ]	51	0
	10 % to < 50 %	[ ]	52	20
	> 50 %	[ ]	53	30

Code Checked from Section A or B: 21

Total Points Factor 2: 10

Attachment 1

NPDES PERMIT RATING WORK SHEET

FACTOR 3: Conventional Pollutants

(only when limited by the permit)

A. Oxygen Demanding Pollutants: (check one) ☐ BOD ☐ COD ☐ Other: _____

Permit Limits: (check one)		Code	Points
☐	< 100 lbs/day	1	0
☐	100 to 1000 lbs/day	2	5
☐	> 1000 to 3000 lbs/day	3	15
☐	> 3000 lbs/day	4	20

Code Number Checked: N/A

Points Scored: 0

B. Total Suspended Solids (TSS)

Permit Limits: (check one)		Code	Points
X	< 100 lbs/day	1	0
☐	100 to 1000 lbs/day	2	5
☐	> 1000 to 5000 lbs/day	3	15
☐	> 5000 lbs/day	4	20

Code Number Checked: 1

Points Scored: 0

C. Nitrogen Pollutants: (check one) ☐ Ammonia ☐ Other: _____

Permit Limits: (check one)	*Nitrogen Equivalent*	Code	Points
☐	< 300 lbs/day	1	0
☐	300 to 1000 lbs/day	2	5
☐	> 1000 to 3000 lbs/day	3	15
☐	> 3000 lbs/day	4	20

Code Number Checked: N/A

Points Scored: 0

Total Points Factor 3: 0

FACTOR 4: Public Health Impact

Is there a public drinking water supply located within 50 miles downstream of the effluent discharge (this include any body of water to which the receiving water is a tributary)? A public drinking water supply may include infiltration galleries, or other methods of conveyance that ultimately get water from the above reference supply.

☒ YES; (If yes, check toxicity potential number below)

☐ NO; (If no, go to Factor 5)

Determine the *Human Health* potential from Appendix A. Use the same SIC doe and subcategory reference as in Factor 1.
(Be sure to use the *Human Health* toxicity group column – check one below)

Toxicity Group	Code	Points	Toxicity Group	Code	Points	Toxicity Group	Code	Points
☐ No process waste streams	0	0	☐ 3.	3	0	☐ 7.	7	15
☒ 1.	1	0	☐ 4.	4	0	☐ 8.	8	20
☐ 2.	2	0	☐ 5.	5	5	☐ 9.	9	25
			☐ 6.	6	10	☐ 10.	10	30

Code Number Checked: 7

Total Points Factor 4: 15

NPDES PERMIT RATING WORK SHEET

FACTOR 5: Water Quality Factors

A. *Is (or will) one or more of the effluent discharge limits based on water quality factors of the receiving stream (rather than technology-based federal effluent guidelines or technology-based state effluent guidelines) or has a wasteload allocation been given to the discharge?*

		Code	Points
[X]	YES	1	10
[ ]	NO	2	0

B. *Is the receiving water in compliance with applicable water quality standards for pollutants that are water quality limited in the permit?*

		Code	Points
[X]	YES	1	0
[ ]	NO	2	5

C. *Does the effluent discharged from this facility exhibit the reasonable potential to violate water quality standards due to whole effluent toxicity?*

		Code	Points
[ ]	YES	1	10
[X]	NO	2	0

Code Number Checked: A 1 B 1 C 2

Points Factor 5: A 10 + B 0 + C 0 = **10**

FACTOR 6: Proximity to Near Coastal Waters

A. Base Score: Enter flow code here (from factor 2) 23

Check appropriate facility HPRI code (from PCS):

	HPRI#	Code	HPRI Score
[ ]	1	1	20
[ ]	2	2	0
[ ]	3	3	30
[X]	4	4	0
[ ]	5	5	20

Enter the multiplication factor that corresponds to the flow code: 0.6

Flow Code	Multiplication Factor
11, 31, or 41	0.00
12, 32, or 42	0.05
13, 33, or 43	0.10
14 or 34	0.15
21 or 51	0.10
22 or 52	0.30
23 or 53	0.60
24	1.00

HPRI code checked : 4

Base Score (HPRI Score): 0 X (Multiplication Factor) 0.6 = 0

B. Additional Points – NEP Program

For a facility that has an HPRI code of 3, does the facility discharge to one of the estuaries enrolled in the National Estuary Protection (NEP) program (see instructions) or the Chesapeake Bay?

	Code	Points
[ ]	1	10
[ ]	2	0

C. Additional Points – Great Lakes Area of Concern

For a facility that has an HPRI code of 5, does the facility discharge any of the pollutants of concern into one of the Great Lakes' 31 areas of concern (see instructions)?

	Code	Points
[ ]	1	10
[ ]	2	0

Code Number Checked: A 4 B N/A C N/A

Points Factor 6: A 0 + B 0 + C 0 = **0**

NPDES PERMIT RATING WORK SHEET

SCORE SUMMARY

Factor	Description	Total Points
1	Toxic Pollutant Potential	35
2	Flows / Streamflow Volume	10
3	Conventional Pollutants	0
4	Public Health Impacts	15
5	Water Quality Factors	10
6	Proximity to Near Coastal Waters	0
	TOTAL (Factors 1 through 6)	70

S1. Is the total score equal to or grater than 80 ☐ YES; (Facility is a Major) ☒ NO

S2. If the answer to the above questions is no, would you like this facility to be discretionary major?

☒ NO

☐ YES; (Add 500 points to the above score and provide reason below:

Reason: _____

NEW SCORE : 70

OLD SCORE : 70

Permit Reviewer's Name : Anna Westernik

Phone Number: 703-583-3837

Date: April 26, 2011

NPDES PERMIT RATING WORK SHEET

[ ] Regular Addition
[ ] Discretionary Addition
[X] Score change, but no status Change
[ ] Deletion

VPDES NO. : VA0091464

Facility Name: FEMA Industrial (Outfall 002)
City / County: Loudoun County
Receiving Water: Jefferies Branch, UT
Reach Number:

Is this facility a steam electric power plant (sic =4911) with one or more of the following characteristics?

1. Power output 500 MW or greater (not using a cooling pond/lake)
2. A nuclear power Plant
3. Cooling water discharge greater than 25% of the receiving stream's 7Q10 flow rate

[ ] Yes; score is 600 (stop here) [X] NO; (continue)

Is this permit for a municipal separate storm sewer serving a population greater than 100,000?

[ ] YES; score is 700 (stop here)
[X] NO; (continue)

FACTOR 1: Toxic Pollutant Potential

PCS SIC Code: Primary Sic Code: 9229 Other Sic Codes: 4961 4959

Industrial Subcategory Code: 000 (Code 000 if no subcategory)

Determine the Toxicity potential from Appendix A. Be sure to use the TOTAL toxicity potential column and check one)

Toxicity Group	Code	Points	Toxicity Group	Code	Points	Toxicity Group	Code	Points
[ ] No process waste streams	0	0	[ ] 3.	3	15	[ ] 7.	7	35
[X] 1.	1	5	[ ] 4.	4	20	[ ] 8.	8	40
[ ] 2.	2	10	[ ] 5.	5	25	[ ] 9.	9	45
			[ ] 6.	6	30	[ ] 10.	10	50

Code Number Checked: 1

Total Points Factor 1: 5

FACTOR 2: Flow/Stream Flow Volume

(Complete either Section A or Section B; check only one)

Section A – Wastewater Flow Only considered

Wastewater Type (see Instructions)			Code	Points
Type I:	Flow < 5 MGD	[ ]	11	0
	Flow 5 to 10 MGD	[ ]	12	10
	Flow > 10 to 50 MGD	[ ]	13	20
	Flow > 50 MGD	[ ]	14	30
Type II:	Flow < 1 MGD	[X]	21	10
	Flow 1 to 5 MGD	[ ]	22	20
	Flow > 5 to 10 MGD	[ ]	23	30
	Flow > 10 MGD	[ ]	24	50
Type III:	Flow < 1 MGD	[ ]	31	0
	Flow 1 to 5 MGD	[ ]	32	10
	Flow > 5 to 10 MGD	[ ]	33	20
	Flow > 10 MGD	[ ]	34	30

Section B – Wastewater and Stream Flow Considered

Wastewater Type (see Instructions)	Percent of Instream Wastewater Concentration at Receiving Stream Low Flow		Code	Points
Type I/III:	< 10 %	[ ]	41	0
	10 % to < 50 %	[ ]	42	10
	> 50%	[ ]	43	20
Type II:	< 10 %	[ ]	51	0
	10 % to < 50 %	[ ]	52	20
	> 50 %	[ ]	53	30

Code Checked from Section A or B: 21

Total Points Factor 2: 10

NPDES PERMIT RATING WORK SHEET

FACTOR 3: Conventional Pollutants

(only when limited by the permit)

A. Oxygen Demanding Pollutants: (check one) ☐ BOD ☐ COD ☐ Other: _____

Permit Limits: (check one)		Code	Points
☐	< 100 lbs/day	1	0
☐	100 to 1000 lbs/day	2	5
☐	> 1000 to 3000 lbs/day	3	15
☐	> 3000 lbs/day	4	20

Code Number Checked: N/A

Points Scored: 0

B. Total Suspended Solids (TSS)

Permit Limits: (check one)		Code	Points
X	< 100 lbs/day	1	0
☐	100 to 1000 lbs/day	2	5
☐	> 1000 to 5000 lbs/day	3	15
☐	> 5000 lbs/day	4	20

Code Number Checked: 1

Points Scored: 0

C. Nitrogen Pollutants: (check one) ☐ Ammonia ☐ Other: _____

Permit Limits: (check one)	*Nitrogen Equivalent*	Code	Points
☐	< 300 lbs/day	1	0
☐	300 to 1000 lbs/day	2	5
☐	> 1000 to 3000 lbs/day	3	15
☐	> 3000 lbs/day	4	20

Code Number Checked: N/A

Points Scored: 0

Total Points Factor 3: 0

FACTOR 4: Public Health Impact

Is there a public drinking water supply located within 50 miles downstream of the effluent discharge (this include any body of water to which the receiving water is a tributary)? A public drinking water supply may include infiltration galleries, or other methods of conveyance that ultimately get water from the above reference supply.

☒ YES; (If yes, check toxicity potential number below)

☐ NO; (If no, go to Factor 5)

Determine the *Human Health* potential from Appendix A. Use the same SIC doe and subcategory reference as in Factor 1.
(Be sure to use the *Human Health* toxicity group column – check one below)

Toxicity Group	Code	Points	Toxicity Group	Code	Points	Toxicity Group	Code	Points
☐ No process waste streams	0	0	☐ 3.	3	0	☐ 7.	7	15
☒ 1.	1	0	☐ 4.	4	0	☐ 8.	8	20
☐ 2.	2	0	☐ 5.	5	5	☐ 9.	9	25
			☐ 6.	6	10	☐ 10.	10	30

Code Number Checked: 1

Total Points Factor 4: 0

NPDES PERMIT RATING WORK SHEET

FACTOR 5: Water Quality Factors

A. *Is (or will) one or more of the effluent discharge limits based on water quality factors of the receiving stream (rather than technology-based federal effluent guidelines or technology-based state effluent guidelines) or has a wasteload allocation been given to the discharge?*

		Code	Points
[ ]	YES	1	10
[X]	NO	2	0

B. *Is the receiving water in compliance with applicable water quality standards for pollutants that are water quality limited in the permit?*

		Code	Points
[X]	YES	1	0
[ ]	NO	2	5

C. *Does the effluent discharged from this facility exhibit the reasonable potential to violate water quality standards due to whole effluent toxicity?*

		Code	Points
[ ]	YES	1	10
[X]	NO	2	0

Code Number Checked: A 1 B 1 C 2

Points Factor 5: A 0 + B 0 + C 0 = **0**

FACTOR 6: Proximity to Near Coastal Waters

A. Base Score: Enter flow code here (from factor 2) 21

Check appropriate facility HPRI code (from PCS):

	HPRI#	Code	HPRI Score
[ ]	1	1	20
[ ]	2	2	0
[ ]	3	3	30
[X]	4	4	0
[ ]	5	5	20

Enter the multiplication factor that corresponds to the flow code: 0.3

Flow Code	Multiplication Factor
11, 31, or 41	0.00
12, 32, or 42	0.05
13, 33, or 43	0.10
14 or 34	0.15
21 or 51	0.10
22 or 52	0.30
23 or 53	0.60
24	1.00

HPRI code checked : 4

Base Score (HPRI Score): 0 X (Multiplication Factor) 0.1 = 0

B. Additional Points – NEP Program

For a facility that has an HPRI code of 3, does the facility discharge to one of the estuaries enrolled in the National Estuary Protection (NEP) program (see instructions) or the Chesapeake Bay?

	Code	Points
[ ]	1	10
[ ]	2	0

C. Additional Points – Great Lakes Area of Concern

For a facility that has an HPRI code of 5, does the facility discharge any of the pollutants of concern into one of the Great Lakes' 31 areas of concern (see instructions)?

	Code	Points
[ ]	1	10
[ ]	2	0

Code Number Checked: A 4 B N/A C N/A

Points Factor 6: A 0 + B 0 + C 0 = **0**

NPDES PERMIT RATING WORK SHEET

SCORE SUMMARY

Factor	Description	Total Points
1	Toxic Pollutant Potential	5
2	Flows / Streamflow Volume	10
3	Conventional Pollutants	0
4	Public Health Impacts	0
5	Water Quality Factors	0
6	Proximity to Near Coastal Waters	0
	TOTAL (Factors 1 through 6)	15

S1. Is the total score equal to or grater than 80 ☐ YES; (Facility is a Major) ☒ NO

S2. If the answer to the above questions is no, would you like this facility to be discretionary major?

☒ NO

☐ YES; (Add 500 points to the above score and provide reason below:

Reason: _____

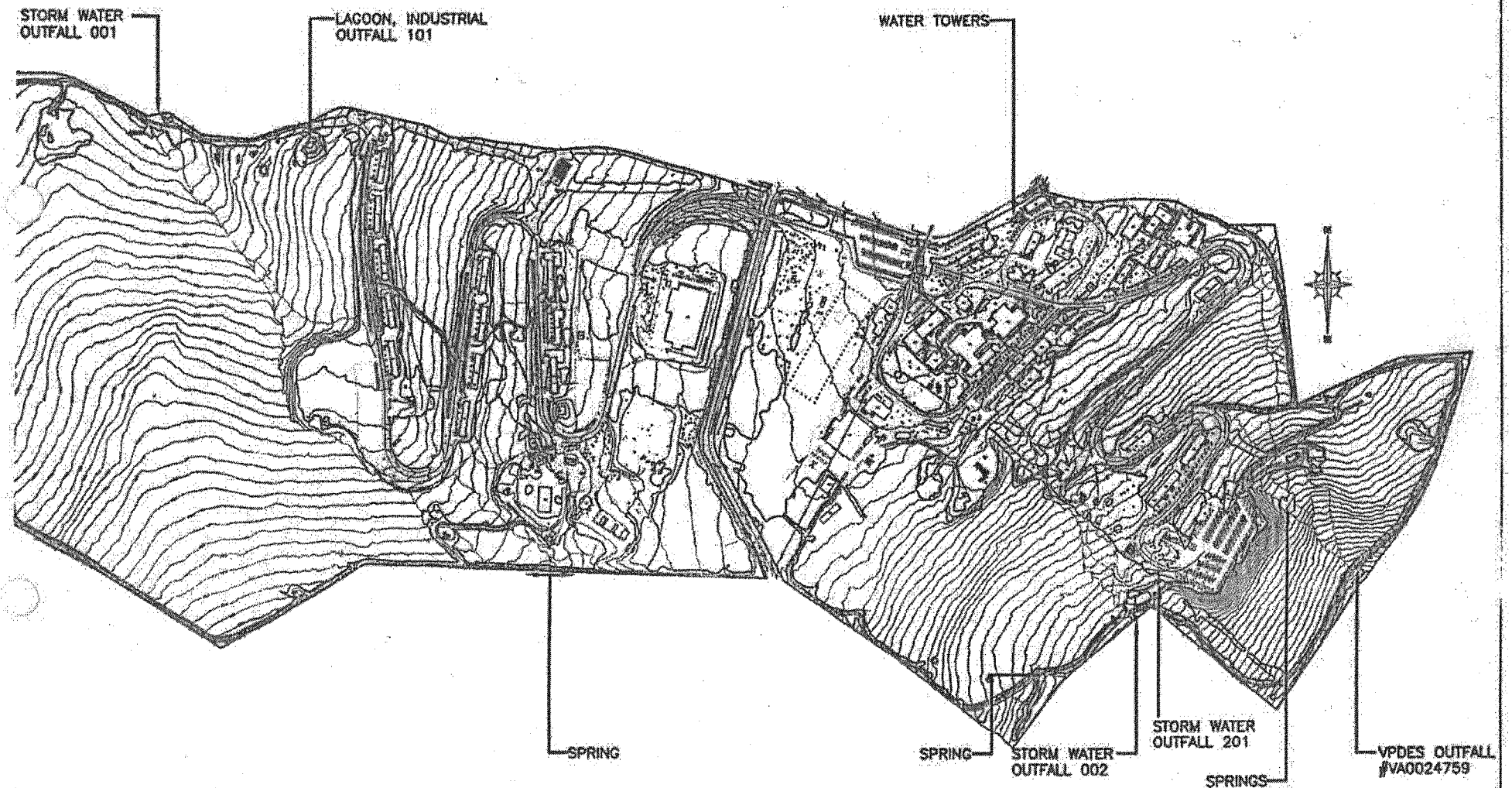
NEW SCORE : 25

OLD SCORE : 15

Permit Reviewer's Name : Anna Westernik

Phone Number: 703-583-3837

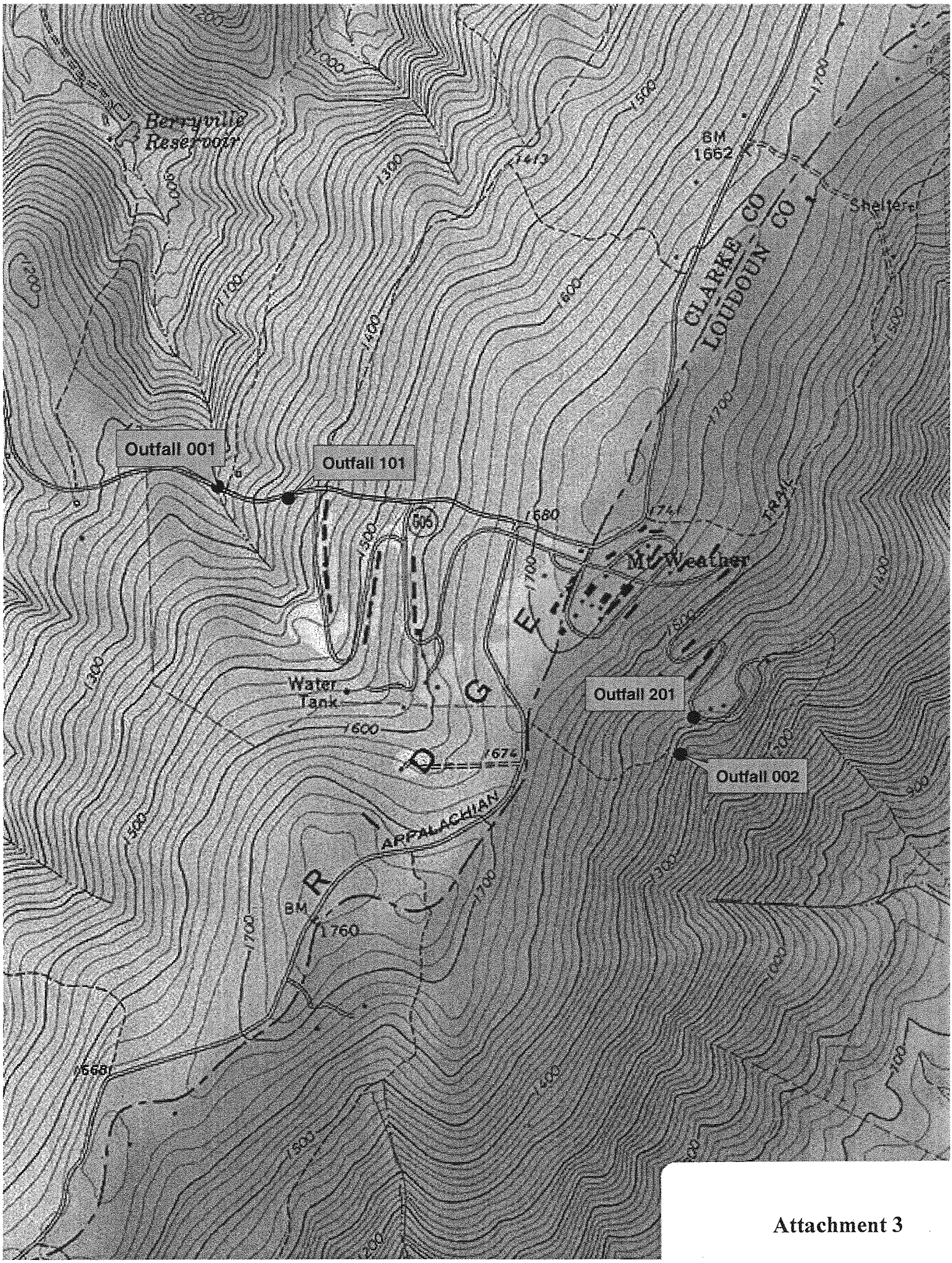
Date: April 20, 2011



OUTFALL MAP

C2

Attachment 2



Attachment 3

MATERIALS/CHEMICALS STORED ON-SITE

1. Stored Indoors/Under Roof

Water Treatment Plant – Storage area drains Wastewater Treatment Plant
- Polyaluminum Chloride
- Powdered Activated Carbon
- Sodium Permanganate
- Sodium Hexametaphosphate
- Chlorine gas
- Hydroxide Sulfate
- Calcium Hypochlorite

Wastewater Treatment Plant – Storage area drains back into the plant
- Chlorine gas
- Sulfur Dioxide gas

Warehouse
- Motor oil, stored in separate building with secondary containment, (6) 55-gallon drums
- Antifreeze, stored in separate building with secondary containment), (3) 55-gallon drums
- Solvent (mineral spirits), stored in separate building with secondary containment, (2) 55-gallon drums
- Fuel additives, stored in flammable storage locker, 2 gallons
- General household cleaners, numerous small containers (1 gallon or less)
- Compressed gas cylinders, 36 total
- Miscellaneous maintenance products: 10 gallons of floor stripper, 10 gallons of wall adhesive, 5 gallons floor wax, etc.

Vehicle/Equipment Maintenance Shops
- Motor oil, (6) 55-gallon drums
- Antifreeze, (3) 55-gallon drums
- Fuel additives, 1 gallon
- Misc. aerosol cleaners, fuel additives, brake fluid, etc. stored in (2) 60-gallon capacity flammable storage lockers
- Solvent (mineral spirits), (1) 55-gallon drum
- Grease, 120 pounds
- Lube oil, 1 55-gallon drum
- Hydraulic fluid, (1) 55-gallon drum
- Transmission fluid, (1) 55-gallon drum
- Kerosene, (1) 5-gallon container, stored in flammable storage locker
- Gasoline, (1) 5-gallon container, stored in flammable storage locker
- Used oil, (1) 55-gallon drum

Pesticides
- Misc. small quantities stored in locked building

Paint Shop
- Paints, stains, varnishing and solvents, etc. of varying quantity stored in flammable storage lockers and on shelving inside of two separate buildings (no floor drains to outside)

- Concrete Sealer, (1) 55-gallon drum
- Waste oil, (1) 55-gallon drum

A/C Shop
- Refrigeration oil, 2 gallons
- Waste refrigeration oil, 5 gallons
- Refrigerant, small quantities stored

Welding Shop
- Compressed gas cylinders, 10-15 cylinders

2. Stored Outdoors

Road Salt (stored in covered shed)
Above and below ground fuel storage tanks

May 11, 2011
MEMORANDUM

To: File

From: Anna Westernik, Water Permit Writer

Subject: Summary of May 10, 2011 Visit to the FEMA Facility

FEMA is a federal government facility located on a mountain ridge on Route 601 near Bluemont, Virginia that has been in operation since the early 1900s. The facility encompasses administrative programs, training and housing facilities, and emergency and disaster relief support. FEMA has water and sewage treatment plants, a police force, and fire/rescue personnel on site. The facility population varies greatly throughout the year depending on surge requirements. However, there are approximately 1,200 people who work at the facility.

A site visit was made to the facility prior to the reissuance of the industrial permit by Susan Mackert and myself from DEQ to assess the status of operations. FEMA personnel present were Kathy Ellis, Environmental Engineer, and Peter Mango. The visit consisted of observation of discharge to Internal Outfalls 101 and 201 and Storm Water Outfalls 001 and 002. A description of these discharges follows:

Outfall 001
Outfall 001 consists of storm water that drains the western portion of the facility and any discharge that would occur from the water treatment plant lagoon. The outfall receives storm water drainage from paved roads, oil storage areas (covered tanks), hazardous waste storage (covered metal buildings), road salt storage (covered shed), construction activities, and basement sump pump discharges. This outfall discharges into Reservoir Hollow above the abandoned reservoir for the Town of Berryville. Flow is measured at the sampling point near Route 605 with a v-notch wier. Reservoir Hollow exits the property at Route 605 in Clarke County

Outfall 101 (Water Treatment Plant)
The average potable water production from the Water Treatment Plant (WTP) is between 100,000 to 125,000 gpd. The plant uses numerous pump stations to draw raw water from the Shenandoah River through a flash mixer where a polymer based coagulant aid is added. Water then enters the flocculation and clarification basin where solids settle. The clarifier effluent enters two rapid sand filters prior to disinfection with chlorine gas in the clearwell. Sufficient chlorine is added to maintain a residual throughout the water distribution system. Sodium hexametaphosphate, a corrosion inhibitor, is added at the clearwell.

All backflush wastewater created by the WTP is discharged to a lagoon with a capacity of approximately 0.34 MGD (9' deep x 100' long x 50' wide) located about one-half mile west of the WTP. The WTP filters are backwashed monthly for 12 hours using clearwell water. The backwash process creates a maximum volume of approximately 22,100 gallons of wastewater each week. Additionally, the flocculation/clarification basin is drained and cleaned twice each year and discharged into the lagoon. The approximate volume of wastewater created by the cleaning of the basin during each occurrence is 270,000 gallons or 540,000 gallons/year.

Wastewater created by backwashing the filters and cleaning of the basin is discharged to a pipe under the WTP. The pipe runs approximately one-half mile west of the water treatment plant and

downhill from the plant. It enters one half of a lagoon that is lined with a synthetic material and stone. The remaining half of the lagoon accepts storm water runoff and is lined with clay. The storm water portion of the lagoon is open for discharge at all times and the other portion of the lagoon is valved off most of the time to increase detention time and settling. Discharge from the filter backwash basin portion of the lagoon enters a pipe and runs further downhill to intersect with an unnamed tributary of Reservoir Hollow 0.18 rivermiles east of Outfall 001. Sampling for Internal Outfall 101 occurs at a manhole near Route 605. The lagoon has been designed so that any overflow of storm water should go to a culvert and directly to Outfall 001 instead of the filter backwash basin.

Reservoir Hollow, UT and Reservoir Hollow, the receiving streams for Outfalls 101 and 001, respectively are fast flowing mountain streams with many riffles. Aquatic life was observed in the vicinity of Outfall 001.

Outfall 002
Outfall 002, which discharges to an unnamed tributary of Jeffries Branch where it exits the FEMA property, receives drainage from the eastern side of the property and sump and cooling water discharge. All discharge from Outfall 201 and storm water discharge from the drainage area south of Internal Outfall 201 travel through this outfall. On this date, excessive suds were observed in the receiving stream. Sampling is conducted at a culvert after the second pond for Outfall 201. Flow is estimated through collection of water in a measured container over a period of time.

Outfall 201 (Sump Discharge, Cooling Water Discharge, Storm Water)
Southwest of the east parking lot is a roadside discharge that receives sump pump discharges, condensate from air conditioning towers, and storm water from the main complex of buildings on the eastern side of the property (including the vehicle maintenance and fueling area). This discharge enters a series of two ponds for treatment by aeration and sedimentation. Additional treatment is provided by two wiers in the first pond that collect oil. Siphons remove the collected oil and grease for disposal. Used liquid oil is recycled and non-liquid oil products are disposed of as hazardous waste. Effluent from the ponds is piped under a road and discharged into an unnamed tributary of Jefferies Branch approximately 300 feet from the Outfall 002 discharge area. During this site visit, the water in the second pond was blue-gray and murky. Fish and some algae were present in the pond. DEQ recommended that installation of an oil/water separator may be more effective in treating this discharge. An oil/water separator has been installed at the motorpool to pretreat all wastewater that enters the sewage treatment plant from the motorpool.

Jefferies Branch, UT in the discharge area is a fast-flowing stream with many riffles, common in the Appalachian Mountain area.

To: Anna Westernik
From: Katie Conaway

Date: May 7, 2011
Subject: Planning Statement for FEMA Industrial
Permit Number: VA0091464

Discharge Type: Industrial

Outfall 001
Discharge Flow: 0.24 MGD
Receiving Stream: Reservoir Hollow
Latitude / Longitude: 39°04'12" / -77°54'00"
Streamcode: 1BREH
Waterbody: VAV-B58R
Water Quality Standards: Class IV, Section 1. Special Standards: pH 6.5 to 9.5.
Rivermile: 3.54
Drainage Area: 24 acres

Outfall 002
Discharge Flow: 0.10 MGD
Receiving Stream: UT to Jeffries Branch
Latitude / Longitude: 39°03'35" / -77°53'03"
Streamcode: 1AXLA
Waterbody: VAN-A05R
Water Quality Standards: Class III, Section 9.
Rivermile: 000.61
Drainage Area: 22.8 acres

1. Is there monitoring data for the receiving stream?
   - If yes, please attach latest summary.
   - If no, where is the nearest downstream monitoring station.

Outfall 001: There is no monitoring data for the receiving stream (Reservoir Hollow).

The nearest downstream DEQ monitoring station is 1BSHN022.63, located on the Shenandoah River. Reservoir Hollow flows into the Shenandoah River. Station 1BSHN022.63 is located approximately 5.26 rivermiles downstream from Outfall 001 of VA0091464. The following is a summary of the monitoring data for Station 1BSHN022.63, as taken from the 2010 Integrated Assessment:

Class IV - Mountainous Zones Waters; Section 1
Special Standards: pH (6.5-9.5)
NWBD: PS85 - Shenandoah River-Dog Run

Monitoring Station(s) used for assessment:

1BSHN022.63
1BSHN-FC08-FOSR

This assessment unit is fully supporting the aquatic life, wildlife and recreational uses. However, this assessment unit is listed as having observed effects due to mercury in fish tissue. The Fish consumption use is not supporting based on the presence of PCB in fish tissue. This assessment unit is included in the EPA approved Shenandoah River PCB TMDL. This assessment unit is also included in a Virginia Department of Health Fish Consumption Advisory.

This assessment unit is listed as having an observed effect for aquatic life due to abnormal fish histology (lesions) due to several years of fish mortality and disease observations.

This assessment unit was included in TMDL ID VAV-PCB / 00191

Initial Listing Date 1998
Impairment Size 51.10 Miles

Trend analysis was performed at station 1BSHN022.63 in the 2006 cycle. No statistically significant trends were detected.

Outfall 002: There is no monitoring data for the receiving stream (Unnamed Tributary to Jeffries Branch).

The nearest downstream DEQ monitoring station is 1aGOO030.75, located on Goose Creek. The receiving stream is an Unnamed Tributary (XLA) that flows into another Unnamed Tributary (XCD), which flows into Jeffries Branch. Jeffries Branch flows into Panther Skin Creek, which is a tributary to Goose Creek. Station 1aGOO030.75 is located approximately 10.9 rivermiles downstream from Outfall 002 of VA0091464. The following is a summary of the monitoring data for Station 1aGOO030.75, as taken from the 2010 Integrated Assessment:

Class III, Section 9.

DEQ ambient water quality monitoring station 1aGOO030.75, at Route 611. USGS gage station 0143700 and citizen monitoring station 1AGOO-10-SOS.

E. coli monitoring finds a bacterial impairment, resulting in an impaired classification for the recreation use. This impairment is nested within the downstream completed bacteria TMDL for Goose Creek. The data collected by the citizen monitoring group indicate that a water quality issue may exist; however, the methodology and/or data quality has not been approved for such a determination. Citizen monitoring finds a medium probability of adverse conditions for biota, and is noted by an observed effect for the aquatic life use, which is otherwise fully supporting. The wildlife use is considered fully supporting. The fish consumption use was not assessed.

2. Is the receiving stream on the current 303(d) list?

No. Neither Reservoir Hollow nor the Unnamed Tributary to Jeffries Branch (XLA) is on the current 303(d) list.

- If yes, what is the impairment?

N/A

- Has the TMDL been prepared?
N/A

- If yes, what is the WLA for the discharge?

N/A

- If no, what is the schedule for the TMDL?

N/A

3. If the answer to (2) above is no, is there a downstream 303(d) listed impairment?

Yes.

- If yes, what is the impairment?

Outfall 001:

Fish Consumption Use (PCBs): The fish consumption use is categorized as impaired due to a Virginia Department of Health, Division of Health Hazards Control, PCB fish consumption advisory. The advisory, dated 12/13/04, limits Rock Bass, Sunfish Species, Smallmouth Bass, and Largemouth Bass consumption to no more than two meals per month. Carp, Channel Catfish and Sucker Species are listed under a "DO NOT EAT" advisory. The affected area of the Shenandoah River extends from the confluence of the North and South Forks of the Shenandoah River to the Virginia/West Virginia State Line.

Outfall 002:

Recreational Use (*E. coli* Bacteria): Sufficient excursions from the maximum *E. coli* bacteria criterion (10 of 27 samples - 37.0%) were recorded at DEQ's ambient water quality monitoring station (1aGOO030.75) at the Route 611 crossing to assess this stream segment as not supporting the recreation use goal for the 2010 water quality assessment.

Aquatic Life Use (Benthic Macroinvertebrates): One of 2 biological monitoring events in 2008 at station 1aGOO002.38 (Route 7) resulted in a VSCI score which indicates an impaired macroinvertebrate community, as does the mean score of these two sampling events.

Fish Consumption Use (PCBs): The fish consumption use is categorized as impaired due to a Virginia Department of Health, Division of Health Hazards Control, PCB fish consumption advisory. The advisory, dated 12/13/04, limits American eel consumption to no more than two meals per month. The affected area includes the following tributaries between the Virginia/Maryland state line near the Route 340 bridge (Loudoun County) to the I-395 bridge in Arlington County (above the Woodrow Wilson Bridge): Goose Creek up to the Dulles Greenway Road Bridge, Broad Run up to the Route 625 bridge, Difficult Run up to the Route 7 bridge, and Pimmit Run up to the Route 309 bridge. Additionally, there were exceedances of the water quality criterion based tissue screening value (TV) of 20 parts per billion (ppb) for polychlorinated biphenyls (PCBs) in American eel (2004, 2004) and smallmouth bass (2004).

- Has a TMDL been prepared?

Outfall 001:

Fish Consumption Use (PCBs): Yes. TMDL Approved October 1, 2001.

Outfall 002:

Recreation Use (*E. coli* Bacteria): Yes. Approved May 1, 2003; Modified October 30, 2006.
Aquatic Life Use (Benthic Macroinvertebrates – Sediment): Yes. Approved April 26, 2004.
Fish Consumption (PCBs): No.

- Will the TMDL include the receiving stream?

  While none of the above mentioned TMDLs did, or will, specifically include the receiving streams, TMDLs consider all upstream point source dischargers during TMDL Development.

- Is there a WLA for the discharge?

  Outfall 001:

  PCB TMDL: No.

  Outfall 002:

  Bacteria TMDL: No (Industrial Facility, so not expected to discharge the pollutant of concern).

  Benthic (Sediment) TMDL: This permit was issued after the TMDL was developed. Since this facility discharges stormwater from Outfall 002, it should have a WLA for sediment. The TMDL included a growth allocation for the future growth and expansion of point sources in the Goose Creek watershed. The WLA for this Outfall was calculated using procedures outlined in the TMDL Report on page 84. The WLA is **8.5 tons/year**.

  PCB TMDL: N/A, TMDL not developed.

- What is the schedule for the TMDL?

  PCB TMDL Due 2018.

4. Is there monitoring or other conditions that Planning/Assessment needs in the permit?

   A. Goose Creek is listed with a PCB impairment. The Assessment/TMDL Staff has concluded that low-level PCB monitoring is not warranted for this facility, based upon the assigned Standard Industrial Classification code. Based upon this information, this facility is not expected to be a source of PCBs and will not be requested to monitor for low-level PCBs.

   B. There is a completed downstream TMDL for the aquatic life use impairment for the Chesapeake Bay. However, the Bay TMDL and the WLAs contained within the TMDL are not addressed in this planning statement.

5. Fact Sheet Requirements – Please provide information on other individual VPDES permits or VA DEQ monitoring stations located within a 2 mile radius of the facility. In addition, please provide information on any drinking water intakes located within a 5 mile radius of the facility.

There are no DEQ monitoring stations within a 2 mile radius of this facility and its outfalls. The only other VPDES Permit within a 2 mile radius is the FEMA STP (VA0024759). There are 2 drinking water intakes within a 5 mile radius of the facility – both are located on the Shenandoah River, upstream from where Reservoir Hollow flows into the Shenandoah River. The two intakes are:

- Town of Berryville Intake (-77.97525, 39.09901)
- Mt. Weather Intake (-77.9131, 39.10321)

6. Could you please calculate the drainage area at the outfall?

Outfall 001: 24.0 acres
Outfall 002: 22.8 acres

FRESHWATER
WATER QUALITY CRITERIA / WASTELOAD ALLOCATION ANALYSIS

Attachment 7

Facility Name: FEMA Industrial--Outfall 101 Permit No.: VA0091464

Receiving Stream: Jefferies Branch, UT Version: OWP Guidance Memo 00-2011 (8/24/00)

Stream Information

Mean Hardness (as CaCO3) =		mg/L
90% Temperature (Annual) =		deg C
90% Temperature (Wet season) =		deg C
90% Maximum pH =		SU
10% Maximum pH =		SU
Tier Designation (1 or 2) =	1	
Public Water Supply (PWS) Y/N? =	y	
Trout Present Y/N? =	n	
Early Life Stages Present Y/N? =	y	

Stream Flows

1Q10 (Annual) =	0	MGD
7Q10 (Annual) =	0	MGD
30Q10 (Annual) =	0	MGD
1Q10 (Wet season) =	0	MGD
30Q10 (Wet season)	0	MGD
30Q5 =	0	MGD
Harmonic Mean =	0	MGD

Mixing Information

Annual - 1Q10 Mix =	100	%
- 7Q10 Mix =	100	%
- 30Q10 Mix =	100	%
Wet Season - 1Q10 Mix =	100	%
- 30Q10 Mix =	100	%

Effluent Information

Mean Hardness (as CaCO3) =	152	mg/L
90% Temp (Annual) =		deg C
90% Temp (Wet season) =		deg C
90% Maximum pH =		SU
10% Maximum pH =		SU
Discharge Flow =	0.08	MGD

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Acenapthene	0	--	--	6.7E+02	9.9E+02	--	--	6.7E+02	9.9E+02	--	--	--	--	--	--	--	--	--	--	6.7E+02	9.9E+02
Acrolein	0	--	--	6.1E+00	9.3E+00	--	--	6.1E+00	9.3E+00	--	--	--	--	--	--	--	--	--	--	6.1E+00	9.3E+00
Acrylonitrile[C]	0	--	--	5.1E-01	2.5E+00	--	--	5.1E-01	2.5E+00	--	--	--	--	--	--	--	--	--	--	5.1E-01	2.5E+00
Aldrin [C]	0	3.0E+00	--	4.9E-04	5.0E-04	3.0E+00	--	4.9E-04	5.0E-04	--	--	--	--	--	--	--	--	3.0E+00	--	4.9E-04	5.0E-04
Ammonia-N (mg/l) (Yearly)	0	5.84E+01	7.09E+00	--	--	5.8E+01	7.1E+00	--	--	--	--	--	--	--	--	--	--	5.8E+01	7.1E+00	--	--
Ammonia-N (mg/l) (High Flow)	0	5.84E+01	7.09E+00	--	--	5.8E+01	7.1E+00	--	--	--	--	--	--	--	--	--	--	5.8E+01	7.1E+00	--	--
Anthracene	0	--	--	8.3E+03	4.0E+04	--	--	8.3E+03	4.0E+04	--	--	--	--	--	--	--	--	--	--	8.3E+03	4.0E+04
Antimony	0	--	--	5.6E+00	6.4E+02	--	--	5.6E+00	6.4E+02	--	--	--	--	--	--	--	--	--	--	5.6E+00	6.4E+02
Arsenic	0	3.4E+02	1.5E+02	1.0E+01	--	3.4E+02	1.5E+02	1.0E+01	--	--	--	--	--	--	--	--	--	3.4E+02	1.5E+02	1.0E+01	--
Barium	0	--	--	2.0E+03	--	--	--	2.0E+03	--	--	--	--	--	--	--	--	--	--	--	2.0E+03	--
Benzene [C]	0	--	--	2.2E+01	5.1E+02	--	--	2.2E+01	5.1E+02	--	--	--	--	--	--	--	--	--	--	2.2E+01	5.1E+02
Benzidine[C]	0	--	--	8.6E-04	2.0E-03	--	--	8.6E-04	2.0E-03	--	--	--	--	--	--	--	--	--	--	8.6E-04	2.0E-03
Benzo (a) anthracene [C]	0	--	--	3.8E-02	1.8E-01	--	--	3.8E-02	1.8E-01	--	--	--	--	--	--	--	--	--	--	3.8E-02	1.8E-01
Benzo (b) fluoranthene [C]	0	--	--	3.8E-02	1.8E-01	--	--	3.8E-02	1.8E-01	--	--	--	--	--	--	--	--	--	--	3.8E-02	1.8E-01
Benzo (k) fluoranthene [C]	0	--	--	3.8E-02	1.8E-01	--	--	3.8E-02	1.8E-01	--	--	--	--	--	--	--	--	--	--	3.8E-02	1.8E-01
Benzo (a) pyrene [C]	0	--	--	3.8E-02	1.8E-01	--	--	3.8E-02	1.8E-01	--	--	--	--	--	--	--	--	--	--	3.8E-02	1.8E-01
Bis2-Chloroethyl Ether[C]	0	--	--	3.0E-01	5.3E+00	--	--	3.0E-01	5.3E+00	--	--	--	--	--	--	--	--	--	--	3.0E-01	5.3E+00
Bis2-Chloroisopropyl Ether	0	--	--	1.4E+03	6.5E+04	--	--	1.4E+03	6.5E+04	--	--	--	--	--	--	--	--	--	--	1.4E+03	6.5E+04
Bis 2-Ethylhexyl Phthalate[C]	0	--	--	1.2E+01	2.2E+01	--	--	1.2E+01	2.2E+01	--	--	--	--	--	--	--	--	--	--	1.2E+01	2.2E+01
Bromoform [C]	0	--	--	4.3E+01	1.4E+03	--	--	4.3E+01	1.4E+03	--	--	--	--	--	--	--	--	--	--	4.3E+01	1.4E+03
Butylbenzylphthalate	0	--	--	1.5E+03	1.9E+03	--	--	1.5E+03	1.9E+03	--	--	--	--	--	--	--	--	--	--	1.5E+03	1.9E+03
Cadmium	0	6.3E+00	1.6E+00	5.0E+00	--	6.3E+00	1.6E+00	5.0E+00	--	--	--	--	--	--	--	--	--	6.3E+00	1.6E+00	5.0E+00	--
Carbon Tetrachloride [C]	0	--	--	2.3E+00	1.6E+01	--	--	2.3E+00	1.6E+01	--	--	--	--	--	--	--	--	--	--	2.3E+00	1.6E+01
Chlordane [C]	0	2.4E+00	4.3E-03	8.0E-03	8.1E-03	2.4E+00	4.3E-03	8.0E-03	8.1E-03	--	--	--	--	--	--	--	--	2.4E+00	4.3E-03	8.0E-03	8.1E-03
Chloride	0	8.6E+05	2.3E+05	2.5E+05	--	8.6E+05	2.3E+05	2.5E+05	--	--	--	--	--	--	--	--	--	8.6E+05	2.3E+05	2.5E+05	--
TRC	0	1.9E+01	1.1E+01	--	--	1.9E+01	1.1E+01	--	--	--	--	--	--	--	--	--	--	1.9E+01	1.1E+01	--	--
Chlorobenzene	0	--	--	1.3E+02	1.6E+03	--	--	1.3E+02	1.6E+03	--	--	--	--	--	--	--	--	--	--	1.3E+02	1.6E+03

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Chlorodibromomethane[C]	0	--	--	4.0E+00	1.3E+02	--	--	4.0E+00	1.3E+02	--	--	--	--	--	--	--	--	--	--	4.0E+00	1.3E+02
Chloroform	0	--	--	3.4E+02	1.1E+04	--	--	3.4E+02	1.1E+04	--	--	--	--	--	--	--	--	--	--	3.4E+02	1.1E+04
2-Chloronaphthalene	0	--	--	1.0E+03	1.6E+03	--	--	1.0E+03	1.6E+03	--	--	--	--	--	--	--	--	--	--	1.0E+03	1.6E+03
2-Chlorophenol	0	--	--	8.1E+01	1.5E+02	--	--	8.1E+01	1.5E+02	--	--	--	--	--	--	--	--	--	--	8.1E+01	1.5E+02
Chlorpyrifos	0	8.3E-02	4.1E-02	--	--	8.3E-02	4.1E-02	--	--	--	--	--	--	--	--	--	--	8.3E-02	4.1E-02	--	--
Chromium III	0	8.0E+02	1.0E+02	--	--	8.0E+02	1.0E+02	--	--	--	--	--	--	--	--	--	--	8.0E+02	1.0E+02	--	--
Chromium VI	0	1.6E+01	1.1E+01	--	--	1.6E+01	1.1E+01	--	--	--	--	--	--	--	--	--	--	1.6E+01	1.1E+01	--	--
Chromium, Total	0	--	--	1.0E+02	--	--	--	1.0E+02	--	--	--	--	--	--	--	--	--	--	--	1.0E+02	--
Chrysene[C]	0	--	--	3.8E-03	1.8E-02	--	--	3.8E-03	1.8E-02	--	--	--	--	--	--	--	--	--	--	3.8E-03	1.8E-02
Copper	0	2.0E+01	1.3E+01	1.3E+03	--	2.0E+01	1.3E+01	1.3E+03	--	--	--	--	--	--	--	--	--	2.0E+01	1.3E+01	1.3E+03	--
Cyanide, Free	0	2.2E+01	5.2E+00	1.4E+02	1.6E+04	2.2E+01	5.2E+00	1.4E+02	1.6E+04	--	--	--	--	--	--	--	--	2.2E+01	5.2E+00	1.4E+02	1.6E+04
DDD[C]	0	--	--	3.1E-03	3.1E-03	--	--	3.1E-03	3.1E-03	--	--	--	--	--	--	--	--	--	--	3.1E-03	3.1E-03
DDE[C]	0	--	--	2.2E-03	2.2E-03	--	--	2.2E-03	2.2E-03	--	--	--	--	--	--	--	--	--	--	2.2E-03	2.2E-03
DDT[C]	0	1.1E+00	1.0E-03	2.2E-03	2.2E-03	1.1E+00	1.0E-03	2.2E-03	2.2E-03	--	--	--	--	--	--	--	--	1.1E+00	1.0E-03	2.2E-03	2.2E-03
Demeton	0	--	1.0E-01	--	--	--	1.0E-01	--	--	--	--	--	--	--	--	--	--	--	1.0E-01	--	--
Diazinon	0	1.7E-01	1.7E-01	--	--	1.7E-01	1.7E-01	--	--	--	--	--	--	--	--	--	--	1.7E-01	1.7E-01	--	--
Dibenz(a,h)anthracene[C]	0	--	--	3.8E-02	1.8E-01	--	--	3.8E-02	1.8E-01	--	--	--	--	--	--	--	--	--	--	3.8E-02	1.8E-01
1,2-Dichlorobenzene	0	--	--	4.2E+02	1.3E+03	--	--	4.2E+02	1.3E+03	--	--	--	--	--	--	--	--	--	--	4.2E+02	1.3E+03
1,3-Dichlorobenzene	0	--	--	3.2E+02	9.6E+02	--	--	3.2E+02	9.6E+02	--	--	--	--	--	--	--	--	--	--	3.2E+02	9.6E+02
1,4-Dichlorobenzene	0	--	--	6.3E+01	1.9E+02	--	--	6.3E+01	1.9E+02	--	--	--	--	--	--	--	--	--	--	6.3E+01	1.9E+02
3,3-Dichlorobenzidine[C]	0	--	--	2.1E-01	2.8E-01	--	--	2.1E-01	2.8E-01	--	--	--	--	--	--	--	--	--	--	2.1E-01	2.8E-01
Dichlorobromomethane[C]	0	--	--	5.5E+00	1.7E+02	--	--	5.5E+00	1.7E+02	--	--	--	--	--	--	--	--	--	--	5.5E+00	1.7E+02
1,2-Dichloroethane[C]	0	--	--	3.8E+00	3.7E+02	--	--	3.8E+00	3.7E+02	--	--	--	--	--	--	--	--	--	--	3.8E+00	3.7E+02
1,1-Dichloroethylene	0	--	--	3.3E+02	7.1E+03	--	--	3.3E+02	7.1E+03	--	--	--	--	--	--	--	--	--	--	3.3E+02	7.1E+03
1,2-trans-dichloroethylene	0	--	--	1.4E+02	1.0E+04	--	--	1.4E+02	1.0E+04	--	--	--	--	--	--	--	--	--	--	1.4E+02	1.0E+04
2,4-Dichlorophenol	0	--	--	7.7E+01	2.9E+02	--	--	7.7E+01	2.9E+02	--	--	--	--	--	--	--	--	--	--	7.7E+01	2.9E+02
2,4-Dichlorophenoxy acetic acid (2,4-D)	0	--	--	1.0E+02	--	--	--	1.0E+02	--	--	--	--	--	--	--	--	--	--	--	1.0E+02	--
1,2-Dichloropropane[C]	0	--	--	5.0E+00	1.5E+02	--	--	5.0E+00	1.5E+02	--	--	--	--	--	--	--	--	--	--	5.0E+00	1.5E+02
1,3-Dichloropropene[C]	0	--	--	3.4E+00	2.1E+02	--	--	3.4E+00	2.1E+02	--	--	--	--	--	--	--	--	--	--	3.4E+00	2.1E+02
Dieldrin[C]	0	2.4E-01	5.6E-02	5.2E-04	5.4E-04	2.4E-01	5.6E-02	5.2E-04	5.4E-04	--	--	--	--	--	--	--	--	2.4E-01	5.6E-02	5.2E-04	5.4E-04
Diethyl Phthalate	0	--	--	1.7E+04	4.4E+04	--	--	1.7E+04	4.4E+04	--	--	--	--	--	--	--	--	--	--	1.7E+04	4.4E+04
2,4-Dimethylphenol	0	--	--	3.8E+02	8.5E+02	--	--	3.8E+02	8.5E+02	--	--	--	--	--	--	--	--	--	--	3.8E+02	8.5E+02
Dimethyl Phthalate	0	--	--	2.7E+05	1.1E+06	--	--	2.7E+05	1.1E+06	--	--	--	--	--	--	--	--	--	--	2.7E+05	1.1E+06
Di-n-Butyl Phthalate	0	--	--	2.0E+03	4.5E+03	--	--	2.0E+03	4.5E+03	--	--	--	--	--	--	--	--	--	--	2.0E+03	4.5E+03
2,4 Dinitrophenol	0	--	--	6.9E+01	5.3E+03	--	--	6.9E+01	5.3E+03	--	--	--	--	--	--	--	--	--	--	6.9E+01	5.3E+03
2-Methyl-4,6-Dinitrophenol	0	--	--	1.3E+01	2.8E+02	--	--	1.3E+01	2.8E+02	--	--	--	--	--	--	--	--	--	--	1.3E+01	2.8E+02
2,4-Dinitrotoluene[C]	0	--	--	1.1E+00	3.4E+01	--	--	1.1E+00	3.4E+01	--	--	--	--	--	--	--	--	--	--	1.1E+00	3.4E+01
Dioxin 2,3,7,8-tetrachlorodibenzo-p-dioxin	0	--	--	5.0E-08	5.1E-08	--	--	5.0E-08	5.1E-08	--	--	--	--	--	--	--	--	--	--	5.0E-08	5.1E-08
1,2-Diphenylhydrazine[C]	0	--	--	3.6E-01	2.0E+00	--	--	3.6E-01	2.0E+00	--	--	--	--	--	--	--	--	--	--	3.6E-01	2.0E+00
Alpha-Endosulfan	0	2.2E-01	5.6E-02	6.2E+01	8.9E+01	2.2E-01	5.6E-02	6.2E+01	8.9E+01	--	--	--	--	--	--	--	--	2.2E-01	5.6E-02	6.2E+01	8.9E+01
Beta-Endosulfan	0	2.2E-01	5.6E-02	6.2E+01	8.9E+01	2.2E-01	5.6E-02	6.2E+01	8.9E+01	--	--	--	--	--	--	--	--	2.2E-01	5.6E-02	6.2E+01	8.9E+01
Alpha + Beta Endosulfan	0	2.2E-01	5.6E-02	--	--	2.2E-01	5.6E-02	--	--	--	--	--	--	--	--	--	--	2.2E-01	5.6E-02	--	--
Endosulfan Sulfate	0	--	--	6.2E+01	8.9E+01	--	--	6.2E+01	8.9E+01	--	--	--	--	--	--	--	--	--	--	6.2E+01	8.9E+01
Endrin	0	8.6E-02	3.6E-02	5.9E-02	6.0E-02	8.6E-02	3.6E-02	5.9E-02	6.0E-02	--	--	--	--	--	--	--	--	8.6E-02	3.6E-02	5.9E-02	6.0E-02
Endrin Aldehyde	0	--	--	2.9E-01	3.0E-01	--	--	2.9E-01	3.0E-01	--	--	--	--	--	--	--	--	--	--	2.9E-01	3.0E-01

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Ethylbenzene	0	--	--	5.3E+02	2.1E+03	--	--	5.3E+02	2.1E+03	--	--	--	--	--	--	--	--	--	--	5.3E+02	2.1E+03
Fluoranthene	0	--	--	1.3E+02	1.4E+02	--	--	1.3E+02	1.4E+02	--	--	--	--	--	--	--	--	--	--	1.3E+02	1.4E+02
Fluorene	0	--	--	1.1E+03	5.3E+03	--	--	1.1E+03	5.3E+03	--	--	--	--	--	--	--	--	--	--	1.1E+03	5.3E+03
Foaming Agents	0	--	--	5.0E+02	--	--	--	5.0E+02	--	--	--	--	--	--	--	--	--	--	--	5.0E+02	--
Guthion	0	--	1.0E-02	--	--	--	1.0E-02	--	--	--	--	--	--	--	--	--	--	--	1.0E-02	--	--
Heptachlor [C]	0	5.2E-01	3.8E-03	7.9E-04	7.9E-04	5.2E-01	3.8E-03	7.9E-04	7.9E-04	--	--	--	--	--	--	--	--	5.2E-01	3.8E-03	7.9E-04	7.9E-04
Heptachlor Epoxide [C]	0	5.2E-01	3.8E-03	3.9E-04	3.9E-04	5.2E-01	3.8E-03	3.9E-04	3.9E-04	--	--	--	--	--	--	--	--	5.2E-01	3.8E-03	3.9E-04	3.9E-04
Hexachlorobenzene [C]	0	--	--	2.8E-03	2.9E-03	--	--	2.8E-03	2.9E-03	--	--	--	--	--	--	--	--	--	--	2.8E-03	2.9E-03
Hexachlorobutadiene [C]	0	--	--	4.4E+00	1.8E+02	--	--	4.4E+00	1.8E+02	--	--	--	--	--	--	--	--	--	--	4.4E+00	1.8E+02
Hexachlorocyclohexane Alpha-BHC [C]	0	--	--	2.6E-02	4.9E-02	--	--	2.6E-02	4.9E-02	--	--	--	--	--	--	--	--	--	--	2.6E-02	4.9E-02
Hexachlorocyclohexane Beta-BHC [C]	0	--	--	9.1E-02	1.7E-01	--	--	9.1E-02	1.7E-01	--	--	--	--	--	--	--	--	--	--	9.1E-02	1.7E-01
Hexachlorocyclohexane Gamma-BHC [C] (Lindane)	0	9.5E-01	--	9.8E-01	1.8E+00	9.5E-01	--	9.8E-01	1.8E+00	--	--	--	--	--	--	--	--	9.5E-01	--	9.8E-01	1.8E+00
Hexachlorocyclopentadiene	0	--	--	4.0E+01	1.1E+03	--	--	4.0E+01	1.1E+03	--	--	--	--	--	--	--	--	--	--	4.0E+01	1.1E+03
Hexachloroethane [C]	0	--	--	1.4E+01	3.3E+01	--	--	1.4E+01	3.3E+01	--	--	--	--	--	--	--	--	--	--	1.4E+01	3.3E+01
Hydrogen Sulfide	0	--	2.0E+00	--	--	--	2.0E+00	--	--	--	--	--	--	--	--	--	--	--	2.0E+00	--	--
Indeno (1,2,3-cd) pyrene [C]	0	--	--	3.8E-02	1.8E-01	--	--	3.8E-02	1.8E-01	--	--	--	--	--	--	--	--	--	--	3.8E-02	1.8E-01
Iron	0	--	--	3.0E+02	--	--	--	3.0E+02	--	--	--	--	--	--	--	--	--	--	--	3.0E+02	--
Isophorone [C]	0	--	--	3.5E+02	9.6E+03	--	--	3.5E+02	9.6E+03	--	--	--	--	--	--	--	--	--	--	3.5E+02	9.6E+03
Kepone	0	--	0.0E+00	--	--	--	0.0E+00	--	--	--	--	--	--	--	--	--	--	--	0.0E+00	--	--
Lead	0	2.0E+02	2.3E+01	1.5E+01	--	2.0E+02	2.3E+01	1.5E+01	--	--	--	--	--	--	--	--	--	2.0E+02	2.3E+01	1.5E+01	--
Malathion	0	--	1.0E-01	--	--	--	1.0E-01	--	--	--	--	--	--	--	--	--	--	--	1.0E-01	--	--
Manganese	0	--	--	5.0E+01	--	--	--	5.0E+01	--	--	--	--	--	--	--	--	--	--	--	5.0E+01	--
Mercury	0	1.4E+00	7.7E-01	--	--	1.4E+00	7.7E-01	--	--	--	--	--	--	--	--	--	--	1.4E+00	7.7E-01	--	--
Methyl Bromide	0	--	--	4.7E+01	1.5E+03	--	--	4.7E+01	1.5E+03	--	--	--	--	--	--	--	--	--	--	4.7E+01	1.5E+03
Methylene Chloride [C]	0	--	--	4.6E+01	5.9E+03	--	--	4.6E+01	5.9E+03	--	--	--	--	--	--	--	--	--	--	4.6E+01	5.9E+03
Methoxychlor	0	--	3.0E-02	1.0E+02	--	--	3.0E-02	1.0E+02	--	--	--	--	--	--	--	--	--	--	3.0E-02	1.0E+02	--
Mirex	0	--	0.0E+00	--	--	--	0.0E+00	--	--	--	--	--	--	--	--	--	--	--	0.0E+00	--	--
Nickel	0	2.6E+02	2.9E+01	6.1E+02	4.6E+03	2.6E+02	2.9E+01	6.1E+02	4.6E+03	--	--	--	--	--	--	--	--	2.6E+02	2.9E+01	6.1E+02	4.6E+03
Nitrate (as N)	0	--	--	1.0E+04	--	--	--	1.0E+04	--	--	--	--	--	--	--	--	--	--	--	1.0E+04	--
Nitrobenzene	0	--	--	1.7E+01	6.9E+02	--	--	1.7E+01	6.9E+02	--	--	--	--	--	--	--	--	--	--	1.7E+01	6.9E+02
N-Nitrosodimethylamine [C]	0	--	--	6.9E-03	3.0E+01	--	--	6.9E-03	3.0E+01	--	--	--	--	--	--	--	--	--	--	6.9E-03	3.0E+01
N-Nitrosodiphenylamine [C]	0	--	--	3.3E+01	6.0E+01	--	--	3.3E+01	6.0E+01	--	--	--	--	--	--	--	--	--	--	3.3E+01	6.0E+01
N-Nitrosodi-n-propylamine [C]	0	--	--	5.0E-02	5.1E+00	--	--	5.0E-02	5.1E+00	--	--	--	--	--	--	--	--	--	--	5.0E-02	5.1E+00
Nonylphenol	0	2.8E+01	6.6E+00	--	--	2.8E+01	6.6E+00	--	--	--	--	--	--	--	--	--	--	2.8E+01	6.6E+00	--	--
Parathion	0	6.5E-02	1.3E-02	--	--	6.5E-02	1.3E-02	--	--	--	--	--	--	--	--	--	--	6.5E-02	1.3E-02	--	--
PCB Total [C]	0	--	1.4E-02	6.4E-04	6.4E-04	--	1.4E-02	6.4E-04	6.4E-04	--	--	--	--	--	--	--	--	--	1.4E-02	6.4E-04	6.4E-04
Pentachlorophenol [C]	0	7.7E-03	5.9E-03	2.7E+00	3.0E+01	7.7E-03	5.9E-03	2.7E+00	3.0E+01	--	--	--	--	--	--	--	--	7.7E-03	5.9E-03	2.7E+00	3.0E+01
Phenol	0	--	--	1.0E+04	8.6E+05	--	--	1.0E+04	8.6E+05	--	--	--	--	--	--	--	--	--	--	1.0E+04	8.6E+05
Pyrene	0	--	--	8.3E+02	4.0E+03	--	--	8.3E+02	4.0E+03	--	--	--	--	--	--	--	--	--	--	8.3E+02	4.0E+03
Radionuclides	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Gross Alpha Activity (pCi/L)	0	--	--	1.5E+01	--	--	--	1.5E+01	--	--	--	--	--	--	--	--	--	--	--	1.5E+01	--
Beta and Photon Activity (mrem/yr)	0	--	--	4.0E+00	4.0E+00	--	--	4.0E+00	4.0E+00	--	--	--	--	--	--	--	--	--	--	4.0E+00	4.0E+00
Radium 226 + 228 (pCi/L)	0	--	--	5.0E+00	--	--	--	5.0E+00	--	--	--	--	--	--	--	--	--	--	--	5.0E+00	--
Uranium (ug/l)	0	--	--	3.0E+01	--	--	--	3.0E+01	--	--	--	--	--	--	--	--	--	--	--	3.0E+01	--

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	**Acute**	**Chronic**	**HH (PWS)**	**HH**
Selenium, Total Recoverable	0	2.0E+01	5.0E+00	1.7E+02	4.2E+03	2.0E+01	5.0E+00	1.7E+02	4.2E+03	--	--	--	--	--	--	--	--	**2.0E+01**	**5.0E+00**	**1.7E+02**	**4.2E+03**
Silver	0	7.1E+00	--	--	--	7.1E+00	--	--	--	--	--	--	--	--	--	--	--	**7.1E+00**	**--**	**--**	**--**
Sulfate	0	--	--	2.5E+05	--	--	--	2.5E+05	--	--	--	--	--	--	--	--	--	**--**	**--**	**2.5E+05**	**--**
1,1,2,2-Tetrachloroethane[C]	0	--	--	1.7E+00	4.0E+01	--	--	1.7E+00	4.0E+01	--	--	--	--	--	--	--	--	**--**	**--**	**1.7E+00**	**4.0E+01**
Tetrachloroethylene[C]	0	--	--	6.9E+00	3.3E+01	--	--	6.9E+00	3.3E+01	--	--	--	--	--	--	--	--	**--**	**--**	**6.9E+00**	**3.3E+01**
Thallium	0	--	--	2.4E-01	4.7E-01	--	--	2.4E-01	4.7E-01	--	--	--	--	--	--	--	--	**--**	**--**	**2.4E-01**	**4.7E-01**
Toluene	0	--	--	5.1E+02	6.0E+03	--	--	5.1E+02	6.0E+03	--	--	--	--	--	--	--	--	**--**	**--**	**5.1E+02**	**6.0E+03**
Total dissolved solids	0	--	--	5.0E+05	--	--	--	5.0E+05	--	--	--	--	--	--	--	--	--	**--**	**--**	**5.0E+05**	**--**
Toxaphene [C]	0	7.3E-01	2.0E-04	2.8E-03	2.8E-03	7.3E-01	2.0E-04	2.8E-03	2.8E-03	--	--	--	--	--	--	--	--	**7.3E-01**	**2.0E-04**	**2.8E-03**	**2.8E-03**
Tributyltin	0	4.6E-01	7.2E-02	--	--	4.6E-01	7.2E-02	--	--	--	--	--	--	--	--	--	--	**4.6E-01**	**7.2E-02**	**--**	**--**
1,2,4-Trichlorobenzene	0	--	--	3.5E+01	7.0E+01	--	--	3.5E+01	7.0E+01	--	--	--	--	--	--	--	--	**--**	**--**	**3.5E+01**	**7.0E+01**
1,1,2-Trichloroethane[C]	0	--	--	5.9E+00	1.6E+02	--	--	5.9E+00	1.6E+02	--	--	--	--	--	--	--	--	**--**	**--**	**5.9E+00**	**1.6E+02**
Trichloroethylene [C]	0	--	--	2.5E+01	3.0E+02	--	--	2.5E+01	3.0E+02	--	--	--	--	--	--	--	--	**--**	**--**	**2.5E+01**	**3.0E+02**
2,4,6-Trichlorophenol [C]	0	--	--	1.4E+01	2.4E+01	--	--	1.4E+01	2.4E+01	--	--	--	--	--	--	--	--	**--**	**--**	**1.4E+01**	**2.4E+01**
2-(2,4,5-Trichlorophenoxy) propionic acid (Silvex)	0	--	--	5.0E+01	--	--	--	5.0E+01	--	--	--	--	--	--	--	--	--	**--**	**--**	**5.0E+01**	**--**
Vinyl Chloride[C]	0	--	--	2.5E-01	2.4E+01	--	--	2.5E-01	2.4E+01	--	--	--	--	--	--	--	--	**--**	**--**	**2.5E-01**	**2.4E+01**
Zinc	0	1.7E+02	1.7E+02	7.4E+03	2.6E+04	1.7E+02	1.7E+02	7.4E+03	2.6E+04	--	--	--	--	--	--	--	--	**1.7E+02**	**1.7E+02**	**7.4E+03**	**2.6E+04**

Notes:

1. All concentrations expressed as micrograms/liter (ug/l), unless noted otherwise
2. Discharge flow is highest monthly average or Form 2C maximum for Industries and design flow for Municipals
3. Metals measured as Dissolved, unless specified otherwise
4. "C" indicates a carcinogenic parameter
5. Regular WLAs are mass balances (minus background concentration) using the % of stream flow entered above under Mixing Information.
   Antidegradation WLAs are based upon a complete mix.
6. Antideg. Baseline = (0.25(WQC - background conc.) + background conc.) for acute and chronic
   = (0.1(WQC - background conc.) + background conc.) for human health
7. WLAs established at the following stream flows: 1Q10 for Acute, 30Q10 for Chronic Ammonia, 7Q10 for Other Chronic, 30Q5 for Non-carcinogens and Harmonic Mean for Carcinogens. To apply mixing ratios from a model set the stream flow equal to (mixing ratio - 1), effluent flow equal to 1 and 100% mix.

Metal	Target Value (SSTV)
Antimony	5.6E+00
Arsenic	1.0E+01
Barium	2.0E+03
Cadmium	9.5E-01
Chromium III	6.3E+01
Chromium VI	6.4E+00
Copper	7.7E+00
Iron	3.0E+02
Lead	1.4E+01
Manganese	5.0E+01
Mercury	4.6E-01
Nickel	1.7E+01
Selenium	3.0E+00
Silver	2.8E+00
Zinc	6.7E+01

Note: do not use QL's lower than the minimum QL's provided in agency guidance

FRESHWATER
WATER QUALITY CRITERIA / WASTELOAD ALLOCATION ANALYSIS

Facility Name: FEMA Industrial--Outfall 201 Permit No.: VA0091464

Receiving Stream: Jefferies Branch, UT Version: OWP Guidance Memo 00-2011 (8/24/00)

Stream Information

Mean Hardness (as CaCO3) =		mg/L
90% Temperature (Annual) =		deg C
90% Temperature (Wet season) =		deg C
90% Maximum pH =		SU
10% Maximum pH =		SU
Tier Designation (1 or 2) =	1	
Public Water Supply (PWS) Y/N? =	y	
Trout Present Y/N? =	n	
Early Life Stages Present Y/N? =	y	

Stream Flows

1Q10 (Annual) =	0	MGD
7Q10 (Annual) =	0	MGD
30Q10 (Annual) =	0	MGD
1Q10 (Wet season) =	0	MGD
30Q10 (Wet season)	0	MGD
30Q5 =	0	MGD
Harmonic Mean =	0	MGD

Mixing Information

Annual - 1Q10 Mix =	100	%
- 7Q10 Mix =	100	%
- 30Q10 Mix =	100	%
Wet Season - 1Q10 Mix =	100	%
- 30Q10 Mix =	100	%

Effluent Information

Mean Hardness (as CaCO3) =	310	mg/L
90% Temp (Annual) =		deg C
90% Temp (Wet season) =		deg C
90% Maximum pH =		SU
10% Maximum pH =		SU
Discharge Flow =	0.1	MGD

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				**Most Limiting Allocations**			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	**Acute**	**Chronic**	**HH (PWS)**	**HH**
Acenapthene	0	--	--	6.7E+02	9.9E+02	--	--	6.7E+02	9.9E+02	--	--	--	--	--	--	--	--	--	--	**6.7E+02**	**9.9E+02**
Acrolein	0	--	--	6.1E+00	9.3E+00	--	--	6.1E+00	9.3E+00	--	--	--	--	--	--	--	--	--	--	**6.1E+00**	**9.3E+00**
Acrylonitrile[C]	0	--	--	5.1E-01	2.5E+00	--	--	5.1E-01	2.5E+00	--	--	--	--	--	--	--	--	--	--	**5.1E-01**	**2.5E+00**
Aldrin [C]	0	3.0E+00	--	4.9E-04	5.0E-04	3.0E+00	--	4.9E-04	5.0E-04	--	--	--	--	--	--	--	--	**3.0E+00**	--	**4.9E-04**	**5.0E-04**
Ammonia-N (mg/l) (Yearly)	0	5.84E+01	7.09E+00	--	--	5.8E+01	7.1E+00	--	--	--	--	--	--	--	--	--	--	**5.8E+01**	**7.1E+00**	--	--
Ammonia-N (mg/l) (High Flow)	0	5.84E+01	7.09E+00	--	--	5.8E+01	7.1E+00	--	--	--	--	--	--	--	--	--	--	**5.8E+01**	**7.1E+00**	--	--
Anthracene	0	--	--	8.3E+03	4.0E+04	--	--	8.3E+03	4.0E+04	--	--	--	--	--	--	--	--	--	--	**8.3E+03**	**4.0E+04**
Antimony	0	--	--	5.6E+00	6.4E+02	--	--	5.6E+00	6.4E+02	--	--	--	--	--	--	--	--	--	--	**5.6E+00**	**6.4E+02**
Arsenic	0	3.4E+02	1.5E+02	1.0E+01	--	3.4E+02	1.5E+02	1.0E+01	--	--	--	--	--	--	--	--	--	**3.4E+02**	**1.5E+02**	**1.0E+01**	--
Barium	0	--	--	2.0E+03	--	--	--	2.0E+03	--	--	--	--	--	--	--	--	--	--	--	**2.0E+03**	--
Benzene [C]	0	--	--	2.2E+01	5.1E+02	--	--	2.2E+01	5.1E+02	--	--	--	--	--	--	--	--	--	--	**2.2E+01**	**5.1E+02**
Benzidine[C]	0	--	--	8.6E-04	2.0E-03	--	--	8.6E-04	2.0E-03	--	--	--	--	--	--	--	--	--	--	**8.6E-04**	**2.0E-03**
Benzo (a) anthracene [C]	0	--	--	3.8E-02	1.8E-01	--	--	3.8E-02	1.8E-01	--	--	--	--	--	--	--	--	--	--	**3.8E-02**	**1.8E-01**
Benzo (b) fluoranthene [C]	0	--	--	3.8E-02	1.8E-01	--	--	3.8E-02	1.8E-01	--	--	--	--	--	--	--	--	--	--	**3.8E-02**	**1.8E-01**
Benzo (k) fluoranthene [C]	0	--	--	3.8E-02	1.8E-01	--	--	3.8E-02	1.8E-01	--	--	--	--	--	--	--	--	--	--	**3.8E-02**	**1.8E-01**
Benzo (a) pyrene [C]	0	--	--	3.8E-02	1.8E-01	--	--	3.8E-02	1.8E-01	--	--	--	--	--	--	--	--	--	--	**3.8E-02**	**1.8E-01**
Bis2-Chloroethyl Ether[C]	0	--	--	3.0E-01	5.3E+00	--	--	3.0E-01	5.3E+00	--	--	--	--	--	--	--	--	--	--	**3.0E-01**	**5.3E+00**
Bis2-Chloroisopropyl Ether	0	--	--	1.4E+03	6.5E+04	--	--	1.4E+03	6.5E+04	--	--	--	--	--	--	--	--	--	--	**1.4E+03**	**6.5E+04**
Bis 2-Ethylhexyl Phthalate [C]	0	--	--	1.2E+01	2.2E+01	--	--	1.2E+01	2.2E+01	--	--	--	--	--	--	--	--	--	--	**1.2E+01**	**2.2E+01**
Bromoform [C]	0	--	--	4.3E+01	1.4E+03	--	--	4.3E+01	1.4E+03	--	--	--	--	--	--	--	--	--	--	**4.3E+01**	**1.4E+03**
Butylbenzylphthalate	0	--	--	1.5E+03	1.9E+03	--	--	1.5E+03	1.9E+03	--	--	--	--	--	--	--	--	--	--	**1.5E+03**	**1.9E+03**
Cadmium	0	1.4E+01	2.8E+00	5.0E+00	--	1.4E+01	2.8E+00	5.0E+00	--	--	--	--	--	--	--	--	--	**1.4E+01**	**2.8E+00**	**5.0E+00**	--
Carbon Tetrachloride [C]	0	--	--	2.3E+00	1.6E+01	--	--	2.3E+00	1.6E+01	--	--	--	--	--	--	--	--	--	--	**2.3E+00**	**1.6E+01**
Chlordane [C]	0	2.4E+00	4.3E-03	8.0E-03	8.1E-03	2.4E+00	4.3E-03	8.0E-03	8.1E-03	--	--	--	--	--	--	--	--	**2.4E+00**	**4.3E-03**	**8.0E-03**	**8.1E-03**
Chloride	0	8.6E+05	2.3E+05	2.5E+05	--	8.6E+05	2.3E+05	2.5E+05	--	--	--	--	--	--	--	--	--	**8.6E+05**	**2.3E+05**	**2.5E+05**	--
TRC	0	1.9E+01	1.1E+01	--	--	1.9E+01	1.1E+01	--	--	--	--	--	--	--	--	--	--	**1.9E+01**	**1.1E+01**	--	--
Chlorobenzene	0	--	--	1.3E+02	1.6E+03	--	--	1.3E+02	1.6E+03	--	--	--	--	--	--	--	--	--	--	**1.3E+02**	**1.6E+03**

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Chlorodibromomethane[C]	0	--	--	4.0E+00	1.3E+02	--	--	4.0E+00	1.3E+02	--	--	--	--	--	--	--	--	--	--	4.0E+00	1.3E+02
Chloroform	0	--	--	3.4E+02	1.1E+04	--	--	3.4E+02	1.1E+04	--	--	--	--	--	--	--	--	--	--	3.4E+02	1.1E+04
2-Chloronaphthalene	0	--	--	1.0E+03	1.6E+03	--	--	1.0E+03	1.6E+03	--	--	--	--	--	--	--	--	--	--	1.0E+03	1.6E+03
2-Chlorophenol	0	--	--	8.1E+01	1.5E+02	--	--	8.1E+01	1.5E+02	--	--	--	--	--	--	--	--	--	--	8.1E+01	1.5E+02
Chlorpyrifos	0	8.3E-02	4.1E-02	--	--	8.3E-02	4.1E-02	--	--	--	--	--	--	--	--	--	--	8.3E-02	4.1E-02	--	--
Chromium III	0	1.4E+03	1.9E+02	--	--	1.4E+03	1.9E+02	--	--	--	--	--	--	--	--	--	--	1.4E+03	1.9E+02	--	--
Chromium VI	0	1.6E+01	1.1E+01	--	--	1.6E+01	1.1E+01	--	--	--	--	--	--	--	--	--	--	1.6E+01	1.1E+01	--	--
Chromium, Total	0	--	--	1.0E+02	--	--	--	1.0E+02	--	--	--	--	--	--	--	--	--	--	--	1.0E+02	--
Chrysene[C]	0	--	--	3.8E-03	1.8E-02	--	--	3.8E-03	1.8E-02	--	--	--	--	--	--	--	--	--	--	3.8E-03	1.8E-02
Copper	0	3.9E+01	2.4E+01	1.3E+03	--	3.9E+01	2.4E+01	1.3E+03	--	--	--	--	--	--	--	--	--	3.9E+01	2.4E+01	1.3E+03	--
Cyanide, Free	0	2.2E+01	5.2E+00	1.4E+02	1.6E+04	2.2E+01	5.2E+00	1.4E+02	1.6E+04	--	--	--	--	--	--	--	--	2.2E+01	5.2E+00	1.4E+02	1.6E+04
DDD[C]	0	--	--	3.1E-03	3.1E-03	--	--	3.1E-03	3.1E-03	--	--	--	--	--	--	--	--	--	--	3.1E-03	3.1E-03
DDE[C]	0	--	--	2.2E-03	2.2E-03	--	--	2.2E-03	2.2E-03	--	--	--	--	--	--	--	--	--	--	2.2E-03	2.2E-03
DDT[C]	0	1.1E+00	1.0E-03	2.2E-03	2.2E-03	1.1E+00	1.0E-03	2.2E-03	2.2E-03	--	--	--	--	--	--	--	--	1.1E+00	1.0E-03	2.2E-03	2.2E-03
Demeton	0	--	1.0E-01	--	--	--	1.0E-01	--	--	--	--	--	--	--	--	--	--	--	1.0E-01	--	--
Diazinon	0	1.7E-01	1.7E-01	--	--	1.7E-01	1.7E-01	--	--	--	--	--	--	--	--	--	--	1.7E-01	1.7E-01	--	--
Dibenz(a,h)anthracene[C]	0	--	--	3.8E-02	1.8E-01	--	--	3.8E-02	1.8E-01	--	--	--	--	--	--	--	--	--	--	3.8E-02	1.8E-01
1,2-Dichlorobenzene	0	--	--	4.2E+02	1.3E+03	--	--	4.2E+02	1.3E+03	--	--	--	--	--	--	--	--	--	--	4.2E+02	1.3E+03
1,3-Dichlorobenzene	0	--	--	3.2E+02	9.6E+02	--	--	3.2E+02	9.6E+02	--	--	--	--	--	--	--	--	--	--	3.2E+02	9.6E+02
1,4-Dichlorobenzene	0	--	--	6.3E+01	1.9E+02	--	--	6.3E+01	1.9E+02	--	--	--	--	--	--	--	--	--	--	6.3E+01	1.9E+02
3,3-Dichlorobenzidine[C]	0	--	--	2.1E-01	2.8E-01	--	--	2.1E-01	2.8E-01	--	--	--	--	--	--	--	--	--	--	2.1E-01	2.8E-01
Dichlorobromomethane[C]	0	--	--	5.5E+00	1.7E+02	--	--	5.5E+00	1.7E+02	--	--	--	--	--	--	--	--	--	--	5.5E+00	1.7E+02
1,2-Dichloroethane[C]	0	--	--	3.8E+00	3.7E+02	--	--	3.8E+00	3.7E+02	--	--	--	--	--	--	--	--	--	--	3.8E+00	3.7E+02
1,1-Dichloroethylene	0	--	--	3.3E+02	7.1E+03	--	--	3.3E+02	7.1E+03	--	--	--	--	--	--	--	--	--	--	3.3E+02	7.1E+03
1,2-trans-dichloroethylene	0	--	--	1.4E+02	1.0E+04	--	--	1.4E+02	1.0E+04	--	--	--	--	--	--	--	--	--	--	1.4E+02	1.0E+04
2,4-Dichlorophenol	0	--	--	7.7E+01	2.9E+02	--	--	7.7E+01	2.9E+02	--	--	--	--	--	--	--	--	--	--	7.7E+01	2.9E+02
2,4-Dichlorophenoxy acetic acid (2,4-D)	0	--	--	1.0E+02	--	--	--	1.0E+02	--	--	--	--	--	--	--	--	--	--	--	1.0E+02	--
1,2-Dichloropropane[C]	0	--	--	5.0E+00	1.5E+02	--	--	5.0E+00	1.5E+02	--	--	--	--	--	--	--	--	--	--	5.0E+00	1.5E+02
1,3-Dichloropropene[C]	0	--	--	3.4E+00	2.1E+02	--	--	3.4E+00	2.1E+02	--	--	--	--	--	--	--	--	--	--	3.4E+00	2.1E+02
Dieldrin[C]	0	2.4E-01	5.6E-02	5.2E-04	5.4E-04	2.4E-01	5.6E-02	5.2E-04	5.4E-04	--	--	--	--	--	--	--	--	2.4E-01	5.6E-02	5.2E-04	5.4E-04
Diethyl Phthalate	0	--	--	1.7E+04	4.4E+04	--	--	1.7E+04	4.4E+04	--	--	--	--	--	--	--	--	--	--	1.7E+04	4.4E+04
2,4-Dimethylphenol	0	--	--	3.8E+02	8.5E+02	--	--	3.8E+02	8.5E+02	--	--	--	--	--	--	--	--	--	--	3.8E+02	8.5E+02
Dimethyl Phthalate	0	--	--	2.7E+05	1.1E+06	--	--	2.7E+05	1.1E+06	--	--	--	--	--	--	--	--	--	--	2.7E+05	1.1E+06
Di-n-Butyl Phthalate	0	--	--	2.0E+03	4.5E+03	--	--	2.0E+03	4.5E+03	--	--	--	--	--	--	--	--	--	--	2.0E+03	4.5E+03
2,4 Dinitrophenol	0	--	--	6.9E+01	5.3E+03	--	--	6.9E+01	5.3E+03	--	--	--	--	--	--	--	--	--	--	6.9E+01	5.3E+03
2-Methyl-4,6-Dinitrophenol	0	--	--	1.3E+01	2.8E+02	--	--	1.3E+01	2.8E+02	--	--	--	--	--	--	--	--	--	--	1.3E+01	2.8E+02
2,4-Dinitrotoluene[C]	0	--	--	1.1E+00	3.4E+01	--	--	1.1E+00	3.4E+01	--	--	--	--	--	--	--	--	--	--	1.1E+00	3.4E+01
Dioxin 2,3,7,8-tetrachlorodibenzo-p-dioxin	0	--	--	5.0E-08	5.1E-08	--	--	5.0E-08	5.1E-08	--	--	--	--	--	--	--	--	--	--	5.0E-08	5.1E-08
1,2-Diphenylhydrazine[C]	0	--	--	3.6E-01	2.0E+00	--	--	3.6E-01	2.0E+00	--	--	--	--	--	--	--	--	--	--	3.6E-01	2.0E+00
Alpha-Endosulfan	0	2.2E-01	5.6E-02	6.2E+01	8.9E+01	2.2E-01	5.6E-02	6.2E+01	8.9E+01	--	--	--	--	--	--	--	--	2.2E-01	5.6E-02	6.2E+01	8.9E+01
Beta-Endosulfan	0	2.2E-01	5.6E-02	6.2E+01	8.9E+01	2.2E-01	5.6E-02	6.2E+01	8.9E+01	--	--	--	--	--	--	--	--	2.2E-01	5.6E-02	6.2E+01	8.9E+01
Alpha + Beta Endosulfan	0	2.2E-01	5.6E-02	--	--	2.2E-01	5.6E-02	--	--	--	--	--	--	--	--	--	--	2.2E-01	5.6E-02	--	--
Endosulfan Sulfate	0	--	--	6.2E+01	8.9E+01	--	--	6.2E+01	8.9E+01	--	--	--	--	--	--	--	--	--	--	6.2E+01	8.9E+01
Endrin	0	8.6E-02	3.6E-02	5.9E-02	6.0E-02	8.6E-02	3.6E-02	5.9E-02	6.0E-02	--	--	--	--	--	--	--	--	8.6E-02	3.6E-02	5.9E-02	6.0E-02
Endrin Aldehyde	0	--	--	2.9E-01	3.0E-01	--	--	2.9E-01	3.0E-01	--	--	--	--	--	--	--	--	--	--	2.9E-01	3.0E-01

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Ethylbenzene	0	--	--	5.3E+02	2.1E+03	--	--	5.3E+02	2.1E+03	--	--	--	--	--	--	--	--	--	--	5.3E+02	2.1E+03
Fluoranthene	0	--	--	1.3E+02	1.4E+02	--	--	1.3E+02	1.4E+02	--	--	--	--	--	--	--	--	--	--	1.3E+02	1.4E+02
Fluorene	0	--	--	1.1E+03	5.3E+03	--	--	1.1E+03	5.3E+03	--	--	--	--	--	--	--	--	--	--	1.1E+03	5.3E+03
Foaming Agents	0	--	--	5.0E+02	--	--	--	5.0E+02	--	--	--	--	--	--	--	--	--	--	--	5.0E+02	--
Guthion	0	--	1.0E-02	--	--	--	1.0E-02	--	--	--	--	--	--	--	--	--	--	--	1.0E-02	--	--
Heptachlor [C]	0	5.2E-01	3.8E-03	7.9E-04	7.9E-04	5.2E-01	3.8E-03	7.9E-04	7.9E-04	--	--	--	--	--	--	--	--	5.2E-01	3.8E-03	7.9E-04	7.9E-04
Heptachlor Epoxide [C]	0	5.2E-01	3.8E-03	3.9E-04	3.9E-04	5.2E-01	3.8E-03	3.9E-04	3.9E-04	--	--	--	--	--	--	--	--	5.2E-01	3.8E-03	3.9E-04	3.9E-04
Hexachlorobenzene [C]	0	--	--	2.8E-03	2.9E-03	--	--	2.8E-03	2.9E-03	--	--	--	--	--	--	--	--	--	--	2.8E-03	2.9E-03
Hexachlorobutadiene [C]	0	--	--	4.4E+00	1.8E+02	--	--	4.4E+00	1.8E+02	--	--	--	--	--	--	--	--	--	--	4.4E+00	1.8E+02
Hexachlorocyclohexane Alpha-BHC [C]	0	--	--	2.6E-02	4.9E-02	--	--	2.6E-02	4.9E-02	--	--	--	--	--	--	--	--	--	--	2.6E-02	4.9E-02
Hexachlorocyclohexane Beta-BHC [C]	0	--	--	9.1E-02	1.7E-01	--	--	9.1E-02	1.7E-01	--	--	--	--	--	--	--	--	--	--	9.1E-02	1.7E-01
Hexachlorocyclohexane Gamma-BHC [C] (Lindane)	0	9.5E-01	--	9.8E-01	1.8E+00	9.5E-01	--	9.8E-01	1.8E+00	--	--	--	--	--	--	--	--	9.5E-01	--	9.8E-01	1.8E+00
Hexachlorocyclopentadiene	0	--	--	4.0E+01	1.1E+03	--	--	4.0E+01	1.1E+03	--	--	--	--	--	--	--	--	--	--	4.0E+01	1.1E+03
Hexachloroethane [C]	0	--	--	1.4E+01	3.3E+01	--	--	1.4E+01	3.3E+01	--	--	--	--	--	--	--	--	--	--	1.4E+01	3.3E+01
Hydrogen Sulfide	0	--	2.0E+00	--	--	--	2.0E+00	--	--	--	--	--	--	--	--	--	--	--	2.0E+00	--	--
Indeno (1,2,3-cd) pyrene [C]	0	--	--	3.8E-02	1.8E-01	--	--	3.8E-02	1.8E-01	--	--	--	--	--	--	--	--	--	--	3.8E-02	1.8E-01
Iron	0	--	--	3.0E+02	--	--	--	3.0E+02	--	--	--	--	--	--	--	--	--	--	--	3.0E+02	--
Isophorone [C]	0	--	--	3.5E+02	9.6E+03	--	--	3.5E+02	9.6E+03	--	--	--	--	--	--	--	--	--	--	3.5E+02	9.6E+03
Kepone	0	--	0.0E+00	--	--	--	0.0E+00	--	--	--	--	--	--	--	--	--	--	--	0.0E+00	--	--
Lead	0	5.0E+02	5.7E+01	1.5E+01	--	5.0E+02	5.7E+01	1.5E+01	--	--	--	--	--	--	--	--	--	5.0E+02	5.7E+01	1.5E+01	--
Malathion	0	--	1.0E-01	--	--	--	1.0E-01	--	--	--	--	--	--	--	--	--	--	--	1.0E-01	--	--
Manganese	0	--	--	5.0E+01	--	--	--	5.0E+01	--	--	--	--	--	--	--	--	--	--	--	5.0E+01	--
Mercury	0	1.4E+00	7.7E-01	--	--	1.4E+00	7.7E-01	--	--	--	--	--	--	--	--	--	--	1.4E+00	7.7E-01	--	--
Methyl Bromide	0	--	--	4.7E+01	1.5E+03	--	--	4.7E+01	1.5E+03	--	--	--	--	--	--	--	--	--	--	4.7E+01	1.5E+03
Methylene Chloride [C]	0	--	--	4.6E+01	5.9E+03	--	--	4.6E+01	5.9E+03	--	--	--	--	--	--	--	--	--	--	4.6E+01	5.9E+03
Methoxychlor	0	--	3.0E-02	1.0E+02	--	--	3.0E-02	1.0E+02	--	--	--	--	--	--	--	--	--	--	3.0E-02	1.0E+02	--
Mirex	0	--	0.0E+00	--	--	--	0.0E+00	--	--	--	--	--	--	--	--	--	--	--	0.0E+00	--	--
Nickel	0	4.7E+02	5.3E+01	6.1E+02	4.6E+03	4.7E+02	5.3E+01	6.1E+02	4.6E+03	--	--	--	--	--	--	--	--	4.7E+02	5.3E+01	6.1E+02	4.6E+03
Nitrate (as N)	0	--	--	1.0E+04	--	--	--	1.0E+04	--	--	--	--	--	--	--	--	--	--	--	1.0E+04	--
Nitrobenzene	0	--	--	1.7E+01	6.9E+02	--	--	1.7E+01	6.9E+02	--	--	--	--	--	--	--	--	--	--	1.7E+01	6.9E+02
N-Nitrosodimethylamine [C]	0	--	--	6.9E-03	3.0E+01	--	--	6.9E-03	3.0E+01	--	--	--	--	--	--	--	--	--	--	6.9E-03	3.0E+01
N-Nitrosodiphenylamine [C]	0	--	--	3.3E+01	6.0E+01	--	--	3.3E+01	6.0E+01	--	--	--	--	--	--	--	--	--	--	3.3E+01	6.0E+01
N-Nitrosodi-n-propylamine [C]	0	--	--	5.0E-02	5.1E+00	--	--	5.0E-02	5.1E+00	--	--	--	--	--	--	--	--	--	--	5.0E-02	5.1E+00
Nonylphenol	0	2.8E+01	6.6E+00	--	--	2.8E+01	6.6E+00	--	--	--	--	--	--	--	--	--	--	2.8E+01	6.6E+00	--	--
Parathion	0	6.5E-02	1.3E-02	--	--	6.5E-02	1.3E-02	--	--	--	--	--	--	--	--	--	--	6.5E-02	1.3E-02	--	--
PCB Total [C]	0	--	1.4E-02	6.4E-04	6.4E-04	--	1.4E-02	6.4E-04	6.4E-04	--	--	--	--	--	--	--	--	--	1.4E-02	6.4E-04	6.4E-04
Pentachlorophenol [C]	0	7.7E-03	5.9E-03	2.7E+00	3.0E+01	7.7E-03	5.9E-03	2.7E+00	3.0E+01	--	--	--	--	--	--	--	--	7.7E-03	5.9E-03	2.7E+00	3.0E+01
Phenol	0	--	--	1.0E+04	8.6E+05	--	--	1.0E+04	8.6E+05	--	--	--	--	--	--	--	--	--	--	1.0E+04	8.6E+05
Pyrene	0	--	--	8.3E+02	4.0E+03	--	--	8.3E+02	4.0E+03	--	--	--	--	--	--	--	--	--	--	8.3E+02	4.0E+03
Radionuclides	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Gross Alpha Activity (pCi/L)	0	--	--	1.5E+01	--	--	--	1.5E+01	--	--	--	--	--	--	--	--	--	--	--	1.5E+01	--
Beta and Photon Activity (mrem/yr)	0	--	--	4.0E+00	4.0E+00	--	--	4.0E+00	4.0E+00	--	--	--	--	--	--	--	--	--	--	4.0E+00	4.0E+00
Radium 226 + 228 (pCi/L)	0	--	--	5.0E+00	--	--	--	5.0E+00	--	--	--	--	--	--	--	--	--	--	--	5.0E+00	--
Uranium (ug/l)	0	--	--	3.0E+01	--	--	--	3.0E+01	--	--	--	--	--	--	--	--	--	--	--	3.0E+01	--

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				**Most Limiting Allocations**			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	**Acute**	**Chronic**	**HH (PWS)**	**HH**
Selenium, Total Recoverable	0	2.0E+01	5.0E+00	1.7E+02	4.2E+03	2.0E+01	5.0E+00	1.7E+02	4.2E+03	--	--	--	--	--	--	--	--	**2.0E+01**	**5.0E+00**	**1.7E+02**	**4.2E+03**
Silver	0	2.4E+01	--	--	--	2.4E+01	--	--	--	--	--	--	--	--	--	--	--	**2.4E+01**	**--**	**--**	**--**
Sulfate	0	--	--	2.5E+05	--	--	--	2.5E+05	--	--	--	--	--	--	--	--	--	**--**	**--**	**2.5E+05**	**--**
1,1,2,2-Tetrachloroethane[C]	0	--	--	1.7E+00	4.0E+01	--	--	1.7E+00	4.0E+01	--	--	--	--	--	--	--	--	**--**	**--**	**1.7E+00**	**4.0E+01**
Tetrachloroethylene[C]	0	--	--	6.9E+00	3.3E+01	--	--	6.9E+00	3.3E+01	--	--	--	--	--	--	--	--	**--**	**--**	**6.9E+00**	**3.3E+01**
Thallium	0	--	--	2.4E-01	4.7E-01	--	--	2.4E-01	4.7E-01	--	--	--	--	--	--	--	--	**--**	**--**	**2.4E-01**	**4.7E-01**
Toluene	0	--	--	5.1E+02	6.0E+03	--	--	5.1E+02	6.0E+03	--	--	--	--	--	--	--	--	**--**	**--**	**5.1E+02**	**6.0E+03**
Total dissolved solids	0	--	--	5.0E+05	--	--	--	5.0E+05	--	--	--	--	--	--	--	--	--	**--**	**--**	**5.0E+05**	**--**
Toxaphene [C]	0	7.3E-01	2.0E-04	2.8E-03	2.8E-03	7.3E-01	2.0E-04	2.8E-03	2.8E-03	--	--	--	--	--	--	--	--	**7.3E-01**	**2.0E-04**	**2.8E-03**	**2.8E-03**
Tributyltin	0	4.6E-01	7.2E-02	--	--	4.6E-01	7.2E-02	--	--	--	--	--	--	--	--	--	--	**4.6E-01**	**7.2E-02**	**--**	**--**
1,2,4-Trichlorobenzene	0	--	--	3.5E+01	7.0E+01	--	--	3.5E+01	7.0E+01	--	--	--	--	--	--	--	--	**--**	**--**	**3.5E+01**	**7.0E+01**
1,1,2-Trichloroethane[C]	0	--	--	5.9E+00	1.6E+02	--	--	5.9E+00	1.6E+02	--	--	--	--	--	--	--	--	**--**	**--**	**5.9E+00**	**1.6E+02**
Trichloroethylene [C]	0	--	--	2.5E+01	3.0E+02	--	--	2.5E+01	3.0E+02	--	--	--	--	--	--	--	--	**--**	**--**	**2.5E+01**	**3.0E+02**
2,4,6-Trichlorophenol [C]	0	--	--	1.4E+01	2.4E+01	--	--	1.4E+01	2.4E+01	--	--	--	--	--	--	--	--	**--**	**--**	**1.4E+01**	**2.4E+01**
2-(2,4,5-Trichlorophenoxy) propionic acid (Silvex)	0	--	--	5.0E+01	--	--	--	5.0E+01	--	--	--	--	--	--	--	--	--	**--**	**--**	**5.0E+01**	**--**
Vinyl Chloride[C]	0	--	--	2.5E-01	2.4E+01	--	--	2.5E-01	2.4E+01	--	--	--	--	--	--	--	--	**--**	**--**	**2.5E-01**	**2.4E+01**
Zinc	0	3.1E+02	3.1E+02	7.4E+03	2.6E+04	3.1E+02	3.1E+02	7.4E+03	2.6E+04	--	--	--	--	--	--	--	--	**3.1E+02**	**3.1E+02**	**7.4E+03**	**2.6E+04**

Notes:

1. All concentrations expressed as micrograms/liter (ug/l), unless noted otherwise
2. Discharge flow is highest monthly average or Form 2C maximum for Industries and design flow for Municipals
3. Metals measured as Dissolved, unless specified otherwise
4. "C" indicates a carcinogenic parameter
5. Regular WLAs are mass balances (minus background concentration) using the % of stream flow entered above under Mixing Information.
   Antidegradation WLAs are based upon a complete mix.
6. Antideg. Baseline = (0.25(WQC - background conc.) + background conc.) for acute and chronic
   = (0.1(WQC - background conc.) + background conc.) for human health
7. WLAs established at the following stream flows: 1Q10 for Acute, 30Q10 for Chronic Ammonia, 7Q10 for Other Chronic, 30Q5 for Non-carcinogens and Harmonic Mean for Carcinogens. To apply mixing ratios from a model set the stream flow equal to (mixing ratio - 1), effluent flow equal to 1 and 100% mix.

Metal	Target Value (SSTV)
Antimony	5.6E+00
Arsenic	1.0E+01
Barium	2.0E+03
Cadmium	1.7E+00
Chromium III	1.1E+02
Chromium VI	6.4E+00
Copper	1.4E+01
Iron	3.0E+02
Lead	1.5E+01
Manganese	5.0E+01
Mercury	4.6E-01
Nickel	3.2E+01
Selenium	3.0E+00
Silver	9.7E+00
Zinc	1.2E+02

Note: do not use QL's lower than th
minimum QL's provided in agency
guidance

FEMA Industrial Outfall 101 (VA0091464)
Detected Parameters in Monitoring Conducted in January and March 2011

Parameter	Level Detected in Discharge	Acute WQS	HH Standard
Flouride	0.2 mg/L	None	None
Nitrate	1.5 mg/L	None	None
Alpha, T	0.126±0.753 piCu/L	None	None
Beta, T	2.21±1.21 piCu/L	None	None
Total Alpha Radium	0.484±0.382 piCu/L	None	None
Radium 226	3.77±0.31 piCu/L	None	None
Sulfur	21.3 mg/L	None	None
Aluminum	120 µg/L	None	None
Barium	34 µg/L	None	None
Magnesium	12,100 µg/L	None	None
Manganese	55 µg/L	None	None
Copper	9.2 µg/L	20 µg/L	None
Cyanide	5.5 µg/L	22 µg/L	16,000 µg/L
Chloroform	8.2 µg/L	None	11,000 µg/L

Hardness at this outfall is 152 mg/L

Attachment 8

FEMA Industrial Outfall 201 (VA0091464)
Detected Parameters in Monitoring Conducted in November 2006

Parameter	Level Detected in Discharge	Acute WQS	HH Standard
Flouride	0.13 mg/L	None	None
Nitrate	1.6 mg/L	None	None
Phosphorus	0.0840 mg/L	None	None
Beta, T	4.0 piCu/L	None	None
Radium, T	0.2 ± 0.2	None	None
Radium 226, T	0.2 ± 0.1	None	None
Sulfate	27.9 mg/L	None	None
Surfactants	0.0409 mg/L	None	None
Barium	16 µg/L	None	None
Iron	244 µg/L	None	None
Magnesium	17,600 µg/L	None	None
Manganese	8.1 µg/L	None	None
Titanium	13.9 µg/L	None	None
Copper	21 µg/L	39 µg/L	None
Zinc	16 µg/L	310 µg/L	16,000 µg/L

Hardness at this outfall is 310 mg/L

4/21/2011 10:34:24 AM

Facility = FEMA Industrial -- Outfall 101
Chemical = Copper
Chronic averaging period = 4
WLAa = 20
WLAc =
Q.L. = 5
# samples/mo. = 1
# samples/wk. = 1

Summary of Statistics:

observations = 1
Expected Value = 9.2
Variance = 30.4704
C.V. = 0.6
97th percentile daily values = 22.3874
97th percentile 4 day average = 15.3068
97th percentile 30 day average= 11.0956
< Q.L. = 0
Model used = BPJ Assumptions, type 2 data

A limit is needed based on Acute Toxicity
Maximum Daily Limit = 20
Average Weekly limit = 20
Average Monthly LImit = 20

The data are:

9.2

4/21/2011 10:40:56 AM

Facility = FEMA Industrial -- Outfall 101
Chemical = Cyanide
Chronic averaging period = 4
WLAa = 22
WLAc =
Q.L. = 5
# samples/mo. = 1
# samples/wk. = 1

Summary of Statistics:

observations = 1
Expected Value = 5.5
Variance = 10.89
C.V. = 0.6
97th percentile daily values = 13.3837
97th percentile 4 day average = 9.15084
97th percentile 30 day average= 6.63329
< Q.L. = 0
Model used = BPJ Assumptions, type 2 data

No Limit is required for this material

The data are:

5.5

5/20/2011 11:44:50 AM

Facility = FEMA Industrial--Outfall 201
Chemical = Copper
Chronic averaging period = 4
WLAa = 39
WLAc =
Q.L. = 5
# samples/mo. = 1
# samples/wk. = 1

Summary of Statistics:

observations = 1
Expected Value = 21.4
Variance = 164.865
C.V. = 0.6
97th percentile daily values = 52.0751
97th percentile 4 day average = 35.6051
97th percentile 30 day average= 25.8095
< Q.L. = 0
Model used = BPJ Assumptions, type 2 data

A limit is needed based on Acute Toxicity
Maximum Daily Limit = 39
Average Weekly limit = 39
Average Monthly LImit = 39

The data are:

21.4

5/20/2011 11:47:01 AM

Facility = FEMA Industrial--Outfall 201
Chemical = Zinc
Chronic averaging period = 4
WLAa = 310
WLAc = 310
Q.L. = 5
# samples/mo. = 1
# samples/wk. = 1

Summary of Statistics:

observations = 1
Expected Value = 16.5
Variance = 98.01
C.V. = 0.6
97th percentile daily values = 40.1513
97th percentile 4 day average = 27.4525
97th percentile 30 day average= 19.8998
< Q.L. = 0
Model used = BPJ Assumptions, type 2 data

No Limit is required for this material

The data are:

16.5

Storm Water Benchmark Concentration Values
FEMA Industrial (VA0091464)
Sampling Conducted in 2004

Outfall 001

Parameter	Level Detected in Discharge	Acute WQS	Benchmark Monitoring Con. Value
TSS	NA	NA	100 mg/L[1]
Zinc	11.8 µg/L	170 µg/L	340 µg/L
Copper	NA	20 µg/L	40 µg/L[2]
Cyanide	NA	22 µg/L	44 µg/L[2]

1. Per Sector AD Requirements
2. Although these parameters were not reported on EPA Form 2F, they were found at Internal Outfall 101 and hence should be monitored.

Outfall 002

Parameter	Level Detected in Discharge	Acute WQS	Benchmark Monitoring Con. Value
TSS	NA	NA	70 mg/L[1]
Zinc	14.7 µg/L	310 µg/L	620 µg/L
Copper	13.1 µg/L	39 µg/L	78 µg/L

1. Per Sector AD Requirements and the Goose Creek Benthic TMDL

Attachment 10

Public Notice – Environmental Permit

PURPOSE OF NOTICE: To seek public comment on a draft permit from the Department of Environmental Quality that will allow the release of treated wastewater/stormwater into water bodies in Loudoun/Clarke Counties, Virginia.

PUBLIC COMMENT PERIOD: September 15, 2011 to 5:00 p.m. on October 14, 2011

PERMIT NAME: Virginia Pollutant Discharge Elimination System Permit – Wastewater/Stormwater issued by DEQ, under the authority of the State Water Control Board.

APPLICANT NAME, ADDRESS AND PERMIT NUMBER: Federal Emergency Management Agency, Mount Weather Emergency Operations Center, P.O. Box 129, Berryville, VA 22611; VA0091464

NAME AND ADDRESS OF FACILITY: Mount Weather Emergency Operations Center, 19844 Blue Ridge Mountain Road, Berryville, VA 20135

PROJECT DESCRIPTION: The Federal Emergency Management Agency has applied for reissuance of a permit for the federal industrial discharges at the Mount Weather Emergency Operations Center. The applicant proposes to release industrial wastewater and storm water from a federal facility at an average rate of 0.051 million gallons per day into an unnamed tributary of Jefferies Branch in Loudoun County located in the Potomac River watershed and 0.19 million gallons per day into an unnamed tributary of Reservoir Hollow in Clarke County located in the Potomac River watershed. A watershed is the land area drained by a river and its incoming streams. The permit will limit the following pollutants to amounts that protect water quality: pH, total suspended solids, total recoverable copper, temperature, total residual chlorine, and total petroleum hydrocarbons.

HOW TO COMMENT AND/OR REQUEST A PUBLIC HEARING: DEQ accepts comments and requests for public hearing by e-mail, fax or postal mail. All comments and requests must be in writing and be received by DEQ during the comment period. Submittals must include the names, mailing addresses and telephone numbers of the commenter/requester and of all persons represented by the commenter/requester. A request for public hearing must also include: 1) The reason why a public hearing is requested. 2) A brief, informal statement regarding the nature and extent of the interest of the requester or of those represented by the requestor, including how and to what extent such interest would be directly and adversely affected by the permit. 3) Specific references, where possible, to terms and conditions of the permit with suggested revisions. A public hearing may be held, including another comment period, if public response is significant, based on individual requests for a public hearing, and there are substantial, disputed issues relevant to the permit.

CONTACT FOR PUBLIC COMMENTS, DOCUMENT REQUESTS AND ADDITIONAL INFORMATION: The public may review the documents at the DEQ-Northern Regional Office by appointment, or may request electronic copies of the draft permit and fact sheet.
Name: Anna T. Westernik
Address: DEQ-Northern Regional Office, 13901 Crown Court, Woodbridge, VA 22193
Phone: (703) 583-3837 E-mail: anna.westernik@deq.virginia.gov Fax: (703) 583-3821

State "Transmittal Checklist" to Assist in Targeting
Municipal and Industrial Individual NPDES Draft Permits for Review

Part I. State Draft Permit Submission Checklist

In accordance with the MOA established between the Commonwealth of Virginia and the United States Environmental Protection Agency, Region III, the Commonwealth submits the following draft National Pollutant Discharge Elimination System (NPDES) permit for Agency review and concurrence.

Facility Name:	FEMA Industrial
NPDES Permit Number:	VA0091464
Permit Writer Name:	Anna Westernik
Date:	June 2, 2011

Major [ ] **Minor** [X] **Industrial** [X] **Municipal** [ ]

I.A. Draft Permit Package Submittal Includes:	**Yes**	**No**	**N/A**
1. Permit Application?	X		
2. Complete Draft Permit (for renewal or first time permit – entire permit, including boilerplate information)?	X		
3. Copy of Public Notice?	X		
4. Complete Fact Sheet?	X		
5. A Priority Pollutant Screening to determine parameters of concern?	X		
6. A Reasonable Potential analysis showing calculated WQBELs?	X		
7. Dissolved Oxygen calculations?			X
8. Whole Effluent Toxicity Test summary and analysis?	X		
9. Permit Rating Sheet for new or modified industrial facilities?	X		

I.B. Permit/Facility Characteristics	**Yes**	**No**	**N/A**
1. Is this a new or currently unpermitted facility?		X	
2. Are all permissible outfalls (including combined sewer overflow points, non-process water and storm water) from the facility properly identified and authorized in the permit?	X		
3. Does the fact sheet **or** permit contain a description of the wastewater treatment process?	X		
4. Does the review of PCS/DMR data for at least the last 3 years indicate significant non-compliance with the existing permit?		X	
5. Has there been any change in streamflow characteristics since the last permit was developed?		X	
6. Does the permit allow the discharge of new or increased loadings of any pollutants?		X	
7. Does the fact sheet **or** permit provide a description of the receiving water body(s) to which the facility discharges, including information on low/critical flow conditions and designated/existing uses?	X		
8. Does the facility discharge to a 303(d) listed water? **DOWNSTREAM**	X		
a. Has a TMDL been developed and approved by EPA for the impaired water?	X		
b. Does the record indicate that the TMDL development is on the State priority list and will most likely be developed within the life of the permit? **DOWNSTREAM**	X		
c. Does the facility discharge a pollutant of concern identified in the TMDL or 303(d) listed water? **DOWNSTREAM**	X		
9. Have any limits been removed, or are any limits less stringent, than those in the current permit?	X		
10. Does the permit authorize discharges of storm water?	X		

Attachment 12

I.B. Permit/Facility Characteristics – cont.	Yes	No	N/A
11. Has the facility substantially enlarged or altered its operation or substantially increased its flow or production?		X	
12. Are there any production-based, technology-based effluent limits in the permit?	X		
13. Do any water quality-based effluent limit calculations differ from the State's standard policies or procedures?		X	
14. Are any WQBELs based on an interpretation of narrative criteria?			X
15. Does the permit incorporate any variances or other exceptions to the State's standards or regulations?		X	
16. Does the permit contain a compliance schedule for any limit or condition?	X		
17. Is there a potential impact to endangered/threatened species or their habitat by the facility's discharge(s)?	X		
18. Have impacts from the discharge(s) at downstream potable water supplies been evaluated?	X		
19. Is there any indication that there is significant public interest in the permit action proposed for this facility?	X		
20. Have previous permit, application, and fact sheet been examined?	X		

Part II. NPDES Draft Permit Checklist

Region III NPDES Permit Quality Review Checklist – For Non-Municipals

(To be completed and included in the record for all non-POTWs)

II.A. Permit Cover Page/Administration	**Yes**	**No**	**N/A**
1. Does the fact sheet **or** permit describe the physical location of the facility, including latitude and longitude (not necessarily on permit cover page)?	X		
2. Does the permit contain specific authorization-to-discharge information (from where to where, by whom)?	X		

II.B. Effluent Limits – General Elements	**Yes**	**No**	**N/A**
1. Does the fact sheet describe the basis of final limits in the permit (e.g., that a comparison of technology and water quality-based limits was performed, and the most stringent limit selected)?	X		
2. Does the fact sheet discuss whether "antibacksliding" provisions were met for any limits that are less stringent than those in the previous NPDES permit?	X		

II.C. Technology-Based Effluent Limits (Effluent Guidelines & BPJ)	**Yes**	**No**	**N/A**
1. Is the facility subject to a national effluent limitations guideline (ELG)?		X	
a. If yes, does the record adequately document the categorization process, including an evaluation of whether the facility is a new source or an existing source?			X
b. If no, does the record indicate that a technology-based analysis based on Best Professional Judgement (BPJ) was used for all pollutants of concern discharged at treatable concentrations?	X		
2. For all limits developed based on BPJ, does the record indicate that the limits are consistent with the criteria established at 40 CFR 125.3(d)?	X		
3. Does the fact sheet adequately document the calculations used to develop both ELG and /or BPJ technology-based effluent limits?	X		
4. For all limits that are based on production or flow, does the record indicate that the calculations are based on a "reasonable measure of ACTUAL production" for the facility (not design)?			X
5. Does the permit contain "tiered" limits that reflect projected increases in production or flow?		X	
a. If yes, does the permit require the facility to notify the permitting authority when alternate levels of production or flow are attained?			X
6. Are technology-based permit limits expressed in appropriate units of measure (e.g., concentration, mass, SU)?	X		
7. Are all technology-based limits expressed in terms of both maximum daily, weekly average, and/or monthly average limits?		X	
8. Are any final limits less stringent than required by applicable effluent limitations guidelines or BPJ?		X	

II.D. Water Quality-Based Effluent Limits	**Yes**	**No**	**N/A**
1. Does the permit include appropriate limitations consistent with 40 CFR 122.44(d) covering State narrative and numeric criteria for water quality?	X		
2. Does the record indicate that any WQBELs were derived from a completed and EPA approved TMDL?			X
3. Does the fact sheet provide effluent characteristics for each outfall?	X		
4. Does the fact sheet document that a "reasonable potential" evaluation was performed?	X		
a. If yes, does the fact sheet indicate that the "reasonable potential" evaluation was performed in accordance with the State's approved procedures?	X		
b. Does the fact sheet describe the basis for allowing or disallowing in-stream dilution or a mixing zone?	X		

II.D. Water Quality-Based Effluent Limits – cont.	Yes	No	N/A
c. Does the fact sheet present WLA calculation procedures for all pollutants that were found to have "reasonable potential"?	X		
d. Does the fact sheet indicate that the "reasonable potential" and WLA calculations accounted for contributions from upstream sources (i.e., do calculations include ambient/background concentrations where data are available)?		X	
e. Does the permit contain numeric effluent limits for all pollutants for which "reasonable potential" was determined?	X		
5. Are all final WQBELs in the permit consistent with the justification and/or documentation provided in the fact sheet?	X		
6. For all final WQBELs, are BOTH long-term (e.g., average monthly) AND short-term (e.g., maximum daily, weekly average, instantaneous) effluent limits established?	X		
7. Are WQBELs expressed in the permit using appropriate units of measure (e.g., mass, concentration)?	X		
8. Does the fact sheet indicate that an "antidegradation" review was performed in accordance with the State's approved antidegradation policy?	X		

II.E. Monitoring and Reporting Requirements	Yes	No	N/A
1. Does the permit require at least annual monitoring for all limited parameters?	X		
a. If no, does the fact sheet indicate that the facility applied for and was granted a monitoring waiver, AND, does the permit specifically incorporate this waiver?			
2. Does the permit identify the physical location where monitoring is to be performed for each outfall?		X	
3. Does the permit require testing for Whole Effluent Toxicity in accordance with the State's standard practices?	X		

II.F. Special Conditions	Yes	No	N/A
1. Does the permit require development and implementation of a Best Management Practices (BMP) plan or site-specific BMPs?	X		
a. If yes, does the permit adequately incorporate and require compliance with the BMPs?	X		
2. If the permit contains compliance schedule(s), are they consistent with statutory and regulatory deadlines and requirements?	X		
3. Are other special conditions (e.g., ambient sampling, mixing studies, TIE/TRE, BMPs, special studies) consistent with CWA and NPDES regulations?	X		

II.G. Standard Conditions	Yes	No	N/A
1. Does the **permit** contain all 40 CFR 122.41 standard conditions or the State equivalent (or more stringent) conditions?	X		

List of Standard Conditions – 40 CFR 122.41

Duty to comply	Property rights	Reporting Requirements
Duty to reapply	Duty to provide information	Planned change
Need to halt or reduce activity not a defense	Inspections and entry	Anticipated noncompliance
	Monitoring and records	Transfers
Duty to mitigate	Signatory requirement	Monitoring reports
Proper O & M	Bypass	Compliance schedules
Permit actions	Upset	24-Hour reporting
		Other non-compliance

2. Does the permit contain the additional standard condition (or the State equivalent or more stringent conditions) for existing non-municipal dischargers regarding pollutant notification levels [40 CFR 122.42(a)]?	X		

Part III. Signature Page

Based on a review of the data and other information submitted by the permit applicant, and the draft permit and other administrative records generated by the Department/Division and/or made available to the Department/Division, the information provided on this checklist is accurate and complete, to the best of my knowledge.

Name	Anna Westernik
Title	VPDES Permit Writer Senior II
Signature	A Westernik
Date	June 2, 1011